Anketell Road Transport Corridor, Western Australia

28 February 2025

Detailed Site Investigation



Document Information

Detailed Site Investigation

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Senversa acknowledges the traditional custodians of the land on which this work was created and pay our respect to Elders past and present.

Executive Summary

Senversa Pty Ltd was commissioned by Main Roads Western Australia (Main Roads) to undertake a Detailed Site Investigation (DSI) in relation to the proposed upgrade of the Anketell Road transport corridor (hereafter referred to as 'the site').

Background

Main Roads is proposing to construct/upgrade the first stage of the 13 km Anketell-Thomas Road freight corridor, to connect the future terminal in Kwinana's Outer Harbour with Tonkin Highway to support wider growth in Kwinana and the south-eastern suburbs. The first 7 km of the corridor is located between the Kwinana Industrial Area, at Leath Road to Kwinana Freeway, Anketell.

Senversa previously undertook a Preliminary Site Investigation (PSI) in which desktop research and a site inspection informed the outcomes and preliminary conceptual site model (CSM) (Senversa 2024a). Areas of potential environmental concern (APECs) identified during the PSI represent common features of industrial areas.

Based on the PSI findings, a Sampling, Quality and Analysis Plan (SAQP) (Senversa 2024b) was prepared outlining a targeted intrusive investigation strategy to address identified data gaps and assist Main Roads and other stakeholders in project planning.

Objectives

The investigation works were designed to address critical CSM uncertainties in the context of the proposed Anketell Road upgrade project, with particular reference to the following:

- Establishment of site soil and groundwater baseline conditions.
- Assessment of potential contamination risks in areas of future potential project disturbance.
- Assessment of potential acid sulfate soils (ASS) risks in areas of future potential project disturbance.

At the time of the investigation works there were no detailed design plans available. Preliminary design information was used to define the SAQP scope, including the soil and groundwater investigation.

Scope of Work

The scope of work broadly included additional desktop review of publicly available information, refinement of CSM, a site inspection, soil sampling at 42 soil bore locations, installation of three groundwater monitoring wells and completion of two groundwater monitoring events (up to of nine groundwater monitoring wells per event). Fieldworks were conducted across several site visits between August 2024 and January 2025.

Conclusions

The soil and groundwater investigation works did not indicate the presence of contamination that is likely to pose a risk as part of the project. However, it is noted that due to the limitations to the scope of work (i.e. site access restrictions, lack of detailed design plan), additional assessment is warranted to further verify the findings.

The groundwater results have provided a baseline assessment of conditions prior to any dewatering works. Based on the current groundwater conditions, groundwater would not be suitable for direct discharge to sensitive wetland environments (or indirect via connecting drainage) without prior treatment.

Whilst the investigation has not identified significant soil or groundwater impacts that would pose a risk to the identified receptors, some environmental risks may present to construction activities which should be considered / may require management (e.g. potential ASS impacts at depth, detectable per- and polyfluoroalkyl substances (PFAS) concentrations in soil and impacts in groundwater).

Recommendations

Based on the outcomes from this DSI, it is recommended that further investigations be undertaken, once access permits and additional design information is available, as follows:

- Additional assessment is likely to be warranted to support detailed design or formal regulatory conditions relating to ASS when conducting soil disturbance activities. This is particularly true for this DSI were preferred investigation locations needed to be variously moved due to access constraints. ASS investigations be undertaken in accordance with the minimum Department of Water and Environmental Regulation (DWER) guidelines.
- Further soil and groundwater investigations should be undertaken within APECs and/or project disturbance areas to assess contamination and baseline conditions. This may include additional lateral or vertical[1] assessment of contamination. Additional groundwater investigations should be augmented towards any areas nominated for construction water supply or construction dewatering areas as this detail becomes available. Furthermore, such investigations should also account for any corresponding cone of depression and target abstraction depth(s).
- A detailed site walkover to assess for potential asbestos in soils should be completed. Additionally, it is considered that any future development should consider implementation of an unexpected finds protocol to manage any potential unexpected finds of asbestos containing materials (ACM) during construction works.
- Any material for offsite disposal at a waste facility should be characterised in accordance with relevant DWER waste guidelines. Any material proposed for importation should be characterised to ensure that the material is suitable for the proposed development plans.

[1] The soil investigation was typically limited to the top 2 m of soil. If construction works are to be undertaken at deeper lithologies, particularly at the intersection of the groundwater table, further investigations may be required.

Contents

Executive Summary ..... **ii**

List of Acronyms ..... **vii**

1.0 Introduction and Objectives **1**

1.1 Introduction 1
1.2 Background 1
1.3 Data Gaps 2
1.4 Regulatory Context 2
1.5 Objectives 2
1.6 Scope of Work 3

2.0 Site Location and Environmental Setting **4**

2.1 Site Identification 4
2.2 Surrounding Land Uses 5
2.3 Proposed Development 5
2.4 Environmental Setting 6

3.0 Site History **22**

3.1 Freedom of Information Requests 22
3.2 Contaminated Sites 22
3.3 Review of Publicly Available Information 22
3.4 Review of Site Reports and Records 23
3.5 Site History Summary 24

4.0 Preliminary Conceptual Site Model **25**

4.1 CSM Introduction 25
4.2 APECs 25
4.3 Exposure Pathways and Transport Mechanisms 28
4.4 Receptors 28
4.5 Assessment of Risk to Environment and Human Health 29
4.6 Source-Pathway Receptor Linkage Assessment Summary 30

5.0 Data Quality Objectives **36**

5.1 Investigation Constraints and Exclusions 39

6.0 Investigation Levels **40**

6.1 Assessment Guidelines 40
6.2 Soil Investigation Levels 40
6.3 Groundwater Investigation Levels 41

7.0 Investigation Scope and Methodology **42**

7.1 Chronology of Site Works 42
7.2 Health, Safety and Traffic Management and Site Access 43

7.3 Soil Investigation 43
7.4 Groundwater Investigation 45
7.5 Quality Assurance and Quality Control 47
7.6 SAQP Deviations 47

8.0 Results 48

8.1 General Site Observations 48
8.2 Lithology 48
8.3 Acid Sulfate Soil Results 48
8.3.1 Field Tests 48
8.3.2 Chromium Reducible Sulfur 49
8.4 Other Soil Results 49
8.4.1 Field Indicators of Contamination 49
8.4.2 Soil Analytical Results 49
8.5 Groundwater Results 50
8.5.1 Groundwater Depth, Elevation and Flow Direction 50
8.5.2 Groundwater Field Chemistry 50
8.5.3 Groundwater Analytical Results 50
8.5.4 Major Ion Groundwater Chemistry 52
8.5.5 Groundwater Acidification Indicators 53
8.5.5.1 Field Parameters 53
8.5.5.2 Metals 53
8.5.5.3 Inorganics 54
8.5.5.4 Major Ions 54
8.5.5.5 Alkalinity 54

9.0 Discussion and Risk Assessment 55

9.1 Soil 55
9.2 Groundwater 55
9.3 ASS 57
9.4 Data Quality Objective Considerations 58

10.0 Revised Conceptional Site Model 59

11.0 Data Gap Status 60

11.1 Data Gap 1: Baseline Site Conditions and Data Gap 2: Potential Contamination Risks in Areas of Potential Project Disturbance 60
11.2 Data Gap 3: Potential Acid Sulfate Soil Risks in Areas of Potential Project Disturbance 60

12.0 Conclusions and Recommendations 61

12.1 Conclusions 61
12.2 Recommendations 61

13.0 Principles and Limitations of Investigation 63

14.0 References 64

Tables in Text

Table 1-1: Data Gaps Based on PSI 2
Table 2-1: Site Details Summary 4
Table 2-2: Site Boundary Coordinates 4
Table 2-3: Site Environmental Setting Summary 6
Table 3-1: Summary of Lot 115 on Plan 482951 22
Table 3-2: Summary of Previous Site Investigations 23
Table 4-1: Summary of APECs and Potential Sources of Contamination 26
Table 4-2: Preliminary Conceptual Site Model (Senversa 2024a) 31
Table 5-1: Data Quality Objectives 37
Table 6-1: Soil Assessment Criteria 40
Table 6-2: Groundwater Assessment Criteria 41
Table 7-1: Chronology of Site Works 42
Table 7-2: Soil Sampling Methodology 44
Table 7-3: Groundwater Sampling Methodology 45
Table 7-4: SAQP Deviations 47
Table 8-1: Generalised Lithological Profile 48
Table 8-2: Groundwater Exceedance Summary (Primary Samples) 52

Appendices

Figures

Tables

Appendix A: Environmental Licence L8974/2016/2 Information

Appendix B: Soil Lithological Logs

Appendix C: Photo Log

Appendix D: Calibration Certificates

Appendix E: Laboratory Documentation

Appendix F: QAQC Report

Appendix G: Groundwater Field Sheets

Appendix H: Waste Disposal Documentation

List of Acronyms

Acronym	Definition
ABC	Ambient Background Concentration
ACM	Asbestos Containing Material
AHD	Australian Height Datum
ANZG	Australian And New Zealand Governments
ANZECC	Australian And New Zealand Environment and Conservation Council
APEC	Area of Potential Environment Concern
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASBINS	Asbestos In Soil
ASC	Assessment of Site Contamination
ASS	Acid Sulfate Soils
ATOM	Australian Terminals Operations Management
bgl	Below Ground Level
BoM	Bureau of Meteorology
BSR	Basic Summary of Records
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene
BYDA	Before You Dig Australia
CRC CARE	Cooperative Research Centre for Contamination Assessment and Remediation of the Environment
CRS	Chromium Reducible Sulphur
CoC	Chain of Custody
CoPC	Contaminant of Potential Concern
CRR	Contaminated – Remediation Required
CRU	Contaminated – Restricted Use
CSM	Conceptual Site Model

Acronym	Definition
DBNGP	Dampier to Bunbury Natural Gas Pipeline
DER	Department of Environmental Regulation
DG	Data Gap
DMIRS	Department of Mine**s**, Industry Regulation and Safety
DoH	Department of Health
DPLH	Department of Land, Planning and Heritage
DQI	Data Quality Indicator
DQO	Data Quality Objective
DSI	Detailed Site Investigation
DTV	Default Trigger Value
DWER	Department Of Water and Environmental Regulation
DWG	Drinking Water Guidelines
EIL	Ecological Based Investigation Level
ESL	Ecological Screening Level
GIL	Groundwater Investigation Level
GME	Groundwater Monitoring Event
HEPA	Heads of EPA
HIL	Health-Based Investigation Level
HSL	Health-Based Screening Level
IL	Investigation Level
KIA	Kwinana Industrial Area
LOR	Limit of Reporting
Main Roads	Main Roads Western Australia
NATA	National Association of Testing Authorities

Acronym	Definition
NEPC	National Environment Protection Council
NEPM	National Environmental Management Plan
NEMP	National Environmental Management Plan
NHMRC	National Health and Medical Research Council
NPUG	Non-Potable Use of Groundwater
OCP	Organochlorine Pesticides
PACM	Potentially Asbestos Containing Material
PASS	Potential Acid Sulfate Soils
PCIR	Potentially Contaminated – Investigation Required
PDWSA	Public Drinking Water Source Areas
PID	Photo-Ionisation Detector
PSI	Preliminary Site Investigation
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percentage Difference
RRU	Remediated for Restricted Use
SAQP	Sampling, Analysis and Quality Plan
SPL	Species Protection Level
SPR	Source-Pathway-Receptor
STI	Short Term Irrigation
SWL	Standing Water Level
TDS	Total Dissolved Solids
ToC	Top of Casing
TRH	Total Recoverable Hydrocarbons
VOC	Volatile Organic Compound
WWTP	Wastewater Treatment Plant

1.0 Introduction and Objectives

1.1 Introduction

Senversa Pty Ltd was commissioned by Main Roads Western Australia (Main Roads) to undertake a Detailed Site Investigation (DSI) in relation to the proposed upgrade of the Anketell Road transport corridor (hereafter referred to as 'the site'). The site, as defined by Main Roads is presented in **Figure 1**.

This report replaces the interim advice notification (Senversa 2025) that was issued to allow for early integration of DSI data for Main Roads internal Anketell Road Upgrade Project Referral Supporting Document.

1.2 Background

Main Roads is proposing to construct/upgrade the first stage of the 13 km Anketell-Thomas Road freight corridor, to connect the future terminal in Kwinana's Outer Harbour with Tonkin Highway to support wider growth in Kwinana and the south-eastern suburbs. The first 7 km of the corridor is located between the Kwinana Industrial Area (KIA), at Leath Road to Kwinana Freeway, Anketell (the Proposal). The Proposal will result in the western section of Anketell Road being upgraded to an Expressway Standard. The Proposal will connect the Kwinana Freeway to the WA State government recommended land-backed port (Westport) within the KIA.

Senversa previously undertook a Preliminary Site Investigation (PSI) in which desktop research and a site inspection informed the outcomes and preliminary conceptual site model (CSM) (Senversa 2024a). Areas of potential environmental concern (APECs) identified during the PSI represent common features of industrial areas and have broadly characterised as follows:

- Scattered potentially asbestos containing material (PACM) debris (e.g. cement sheeting fragments).
- Fuel storage, transport and dispensing.
- Alumina refinery and ancillary infrastructure.
- Open sumps and drains (also potentially represent a contaminant pathway and receptor).
- Firefighting depot.
- Wastewater treatment.
- Landfilling.
- Scrapyard.

Based on the PSI findings and preliminary design information provided by Main Roads, a Sampling, Quality and Analysis Plan (SAQP) (Senversa 2024b) was prepared outlining a targeted intrusive investigation strategy to address identified data gaps (DGs) and assist Main Roads and other stakeholders in project planning.

1.3 Data Gaps

Table 1-1 below presents a summary of the identified DGs based on the preliminary CSM (Senversa 2024a).

Table 1-1: Data Gaps Based on PSI

Data Gap	Description
1. Baseline Site Conditions	Baseline conditions of the site have not been established. Characterisation of baseline conditions will enable the management of project-related disturbances, nearby contaminated sites and potential presence of acid sulfate soils (ASS).
2. Potential Contamination Risks in Areas of Potential Project Disturbance	While various disparate studies have been performed on nearby sites under the *Contaminated Sites Act 2003,* project augmented contamination characterisation is considered warranted to further verify potential contamination risks and appropriate management measures.
3. Potential Acid Sulfate Soil Risks in Areas of Potential Project Disturbance	Moderate to high ASS risks exists within portions of the site that may be disturbed by the Anketell Road transport corridor upgrade project. Previous studies have largely focused on structure related risks posed by ASS. Project augmented ASS characterisation is considered warranted to further verify potential ASS risks and appropriate management measures.

1.4 Regulatory Context

To satisfy key requirements for a DSI, in line with Western Australia guidance, the assessment and reporting methodologies are consistent with the requirements of prevailing legislation and guidelines including, but not limited to:

- Contaminated Sites Act 2003 (CS Act) and Contaminated Sites Regulations 2006 (CS Regulations)
- National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013) (ASC NEPM) (National Environment Protection Council [NEPC] 1999).
- Department of Water and Environmental Regulation (DWER) (2021) Assessment and management of contaminated sites. November 2021.

Additionally, while a detailed ASS investigation was not undertaken as part of this DSI, methodology was taken from the below guidelines in regard to ASS identification and investigation.

- Department of Environmental Regulation (DER) (2015) Identification and investigation of acid sulfate soils and acidic landscapes. June 2015.

1.5 Objectives

The objective the DSI was to address critical CSM uncertainties in the context of the proposed Anketell Road upgrade project, with particular reference to the following:

- Establishment of site soil and groundwater baseline conditions.
- Assessment of potential contamination risks in areas of future potential project disturbance.
- Assessment of potential ASS risks in areas of future potential project disturbance.

It was not an objective of the investigation to reclassify, under the CS Act, any contaminated lots located within the site boundary.

1.6 Scope of Work

The following scope of work was undertaken to achieve the project objectives:

- Desktop review of publicly available information, in addition to that conducted as part of the PSI.
- Refinement of CSM and SAQP based upon desktop review findings.
- Site inspection to ‘ground truth’ proposed soil bore and monitoring well locations.
- Service clearance, by an approved service locator, of proposed sampling locations to identify above and below ground utilities.
- Advancement of 42 soil bores to a maximum depth of 7 m below ground level (bgl), utilising non-destructive drilling (NDD) (hand auger), direct push and solid flight auger methodology, at the identified APECs to assess potential contamination.
- Installation of three groundwater monitoring bores, to a maximum depth of 27 m bgl, using sonic drilling methodology.
- Completion of two groundwater monitoring events (GMEs), of up to of nine groundwater monitoring wells (comprising a combination of pre-existing and newly installed monitoring wells), in November 2024 and January 2025.
- Submission of primary and associated quality control/quality assurance (QA/QC) samples to National Association of Testing Authorities (NATA) accredited laboratories for the contaminants of potential concern (CoPC) suite outlined in the SAQP (Senversa 2024b).
- Preparation of this report to document the findings of the investigation.

2.0 Site Location and Environmental Setting

2.1 Site Identification

The identification details for land parcels within the site boundary are presented in **Table 2-1** and the location and layout of the site is shown on **Figure 1**. Site identification and setting information is sourced from the PSI (Senversa 2024a) unless otherwise referenced.

Table 2-1: Site Details Summary

Items	Attributes
Site Identification	Existing Anketell Road within the site and associated intersecting roads and road reserves, surrounded by a combination of industrial/commercial land and wetland reserves.
Legal Description	The site boundaries encompass the road alignment, road reserve and multiple land parcels along Anketell Road. Individual land parcel boundaries are outlined in **Figure 2a** and **Figure 2b** and accessible via the online Landgate Map Viewer Plus (Landgate 2023a).
Site Address	Anketell Road, Anketell, Western Australia
DWER Classification	Various – see **Figure 2a and Figure 2b.**
Site Area	Approximately 221 ha
Site Boundaries	The site boundary is presented in **Figure 1,** and the boundary coordinates are provided in **Table 2-2.**
Local Government Authority	City of Kwinana
Current Zoning	Various (primarily as a road reserve).
Current Land Use	The site is currently used as a primary road within residential, regional reserve and industrial areas adjacent.

Table 2-2: Site Boundary Coordinates

Name	X Coordinate	Y Coordinate
1	384271.6166	6435786.87
2	385214.8575	6436560.782
3	385561.7679	6434596.019
4	387459.7184	6436340.127
5	387459.842	6434951.179
6	391899.4911	6436594.37
7	391478.7121	6435308.274
8	392651.8633	6435851.903

Items	Attributes
Surrounding Land Use	The surrounding land use features a range of industrial, commercial and agricultural uses.
Proposed Development	The Proposal will connect the Kwinana Freeway to the WA State government recommended land-backed port (Westport) within the KIA. The Proposal will involve intrusive works within the road shoulder and reserves (further described under Section 2.3 below).
Site History	Historical aerial imagery suggests that the most notable changes to site use within the project area boundary over time include the development of primary roads and freeways from once undisturbed bushland, between 1981 and 2005. From 1970, significant industrial and commercial development has occurred at surrounding sites including contaminating activities such as alumina tailings storage, Australian Terminals Operations Management (ATOM) pipeline and wastewater treatment and storage.

2.2 Surrounding Land Uses

A description of the surrounding land uses and zoning is detailed below and is shown on **Figure 1**.

- North – Rural, parks and recreational reserves, other regional roads, primary regional roads, railways, public purposes – water supply (sewerage and drainage), industrial.
- East – Residential, public purposes – high school, other regional roads, parks and recreational reserves.
- South – Parks and recreational reserve, rural, public purposes – special uses (reserve, water authority).
- West – Industrial, railway, public purposes (water authority).

2.3 Proposed Development

The proposed transport corridor works are broadly understood to comprise of the following:

- Approximately 7 km of new urban expressway standard, dual carriageway.
- Grade separated interchanges, including bridge decks and piers, at Kwinana Freeway, Mandogalup Road, Abercrombie Road, Kwinana Motorplex access entry, Armstrong Road, Rockingham Road, and Anketell Road (west of Rockingham Road) and Beard Street.
- Grade separations of Rockingham Road and Anketell Road over rail.
- New local roads and existing road modifications, including upgrades along Rockingham Road.
- Drainage basins, drains, compensation basins and other associated infrastructure.
- Shared path for the full length of the Anketell Road Upgrade proposal.
- Other road infrastructure and furniture.
- Utility relocations and accommodation works to properties.
- A proposed dive structure Treeby Road, west of the Kwinana Freeway.
- A proposed box culvert Fauna Underpass at McLaughlan Road.

Site plans, provided by Main Roads, were used to assist the investigation design and are available in the SAQP (Senversa 2024b).

The site boundary shown on **Figure 1**, outlines the area of works proposed at the time of this report.

2.4 Environmental Setting

Table 2-3: Site Environmental Setting Summary

Item	Details
Topography	The SLIP Maps: Locate V5 (Landgate 2023b) indicates that the topography of the site is gently undulating with elevations ranging between approximately 7 and 42 metres Australian Height Datum (m AHD). This was confirmed during the site inspection. The site can be broadly categorised into two topographical regions, as discussed below: • Rockingham Road to Mandogalup Road (5.5 km), gently undulating topography ranging between 7 and 39 m AHD. • Mandogalup Road to Spears Drive (9.5 km), gently undulating topography ranging between 15 and 42 m AHD.
Geology	**Regional Geology** The site is located within the Swan Coastal Plain, which is made up of sedimentary materials that originated due to river, wind or marine activity, underlying up to 15,000 m of Perth Basin (DWER 2024). The 1:50,000 geology maps (DMIRS 2022a and 2022b) for Fremantle and Armadale identify the site area consisting of: • Tamala Limestone (LS_1) and Tamala Limestone derived Sand (S_7) described as rock consisting of calcarenite wind-blown shell fragments and quartz sand dunes ranging from Rockingham Road to Treeby Road. • Bassendean Sand (S_8) characterised by quartz sand (dunes) from Treeby Road to Nicholson Road. • Guildford Formation Clayey Sand (S_c) described as alluvium (clay, loam, sand and gravel) from Nicholson Road to the eastern end of the site. **Local Geology** The generalised geological conditions identified as part of this investigation comprised: • FILL: Gravely Sand (SP), SAND (SP), Gravely Silty Sand (SP): fine to coarse grained sand, fine to medium grained gravel, non-plastic silt, pale brown and pale grey generally loose dense, with thickness between 0.0 and 1 m bgl. • Tamala Limestone (Aeolian): Pale brown, low to high strength, slightly to highly weathered with layers of sandy or silty soils and a thickness from 4.5 m bgl up to 27 m bgl. • Bassendean Sand (Aeolian): SAND, Silty SAND (SP/SP-SM) fine to coarse grained, white/pale grey/pale brown/brown, trace/with fine silt, generally loose to medium dense, occasionally very loose, occasionally layers of silty sand and between 0 m bgl to 5 m bgl. The encountered local geology differed to what was reported in previous investigations, including Golder (2022), however it is noted that due to the spatial scale of the site, some differences in local geology between investigations is to be expected.
ASS	Review of the DWER ASS Risk Map (Landgate 2023b), indicates that most of the site to the west of Clementi Road has no known risk of ASS. A moderate to low risk of ASS occurrence in the top 3 m of natural soils was shown between Clementi Road and Mandogalup Road before returning no known risk until Lyon Road. Lyon Road to the eastern extent of the site is listed as a moderate to low risk of ASS. It is noted that there are areas of high to moderate risk within close proximity to the site (or within the site), specifically in the eastern portion of the site. Disturbance of these soils may lead to acidification and mobilisation of metals in surface water bodies. ASS was largely not identified during the intrusive investigation, although areas of potential acid sulfate soils (PASS), as indicated by pH change (>3 units), were potentially identified and have been further detailed in **Section 8.3**.
Hydrology	The nearest surface water body to the site is the Spectacles Wetlands, which is subject to inundation and receives water from the Peel Main Drain which intersects the eastern portion of the site There are multiple other wetlands adjacent to site boundaries including two Resource Enhancement Wetlands (UFI 6,379 and 6,380) located approximately 300 m north of site boundary (DBCA 2023a). The Indian Ocean is less than 100 m from the western boundary of site. Ponds operated by Alcoa are located 300 m north of site at Kwinana Refinery which are expected to be lined and therefore not have direct contact with the regional aquifer (Golder 2022). There is also a surge pond operated by Alcoa at Kwinana Motorplex which receives stormwater discharge, rainfall runoff, water from Alcoa sump pumps and recovery bores (Golder 2022). The Kwinana Wastewater Treatment Plant (WWTP) is located south of the site, to the west of the Spectacles wetlands with two large ponds visible from satellite imagery, along with smaller evaporation and infiltration ponds/tanks (**Figure 1**). The Kwinana WWTP commenced operations in 1975 with secondary treated wastewater infiltrated to groundwater at a rate of approximately 1.7 GL/year (FSG 2024).

Item	Details
Hydrogeology	**Regional Hydrogeology** The Perth Groundwater Map (DWER 2023b) indicates that the aquifers underlying the site comprise: • Cockburn/Serpentine-Mirrabooka and Perth – Superficial Swan as the superficial, unconfined aquifers. • Cockburn/Serpentine-Leederville Aquifer as an underlying, confined aquifer. The Leederville aquifer, a multi-layered, confined aquifer, is one of the primary aquifers underlying the majority of the Swan Coastal Plain within the region. • Cockburn/Serpentine-Perth – Yarragadee North Aquifer as a major regional aquifer. The Yarragadee aquifer, a multi-layered, confined, is one of the primary aquifers underlying the majority of the northern Perth Basin. Review of the historical minimum and maximum groundwater contours available on the Perth Groundwater Map infers groundwater at the site flows west with eventual discharge to the Indian Ocean. **Local Hydrogeology** Groundwater within the site is inferred to be encountered within the Superficial Swan aquifer. The GMEs identified that groundwater beneath the site occurs between 0.611 AHD to a maximum depth of approximately 12.89 AHD with groundwater at shallower depths in the central portion of site. Perched groundwater has been identified at depths of a few meters below the existing ground surface within the decommissioned Alcoa residual storage area, to the south of Anketell Road (FSG 2024). It is inferred that similar perched groundwater may be present within the existing Alcoa residual storage area to the north of Anketell Road. Groundwater salinity, as identified by total dissolved solids (TDS), was reported in the range of 132 mg/L to 999 mg/L between Rockingham Road and Kwinana Freeway during the GMEs, with groundwater generally less saline in the eastern portion of the site. Whilst local groundwater generally flows in a westerly direction toward the Indian Ocean the following specific observations were noted in the FSG (2024) report: • The groundwater level gradient is very flat in the western portion of the site, with some localised flow towards abstraction areas (e.g. Alcoa recovery bores). • Groundwater mounding has been inferred at the Kwinana WWTP caused by the infiltration ponds, which direct groundwater to flow away from the ponds (radial flow), with a component of easterly flow towards the Spectacles wetlands. • Groundwater in the western portion of the site is subject to daily tidal influence, typically in the range of 0.2 m to 0.5 m. Tidal influences were identified up to 600 m inland from the Indian Ocean, particularly within the lower sub-aquifer (Tamala Limestone). **Surrounding Groundwater Bores / Licenced Abstractions** A search of the Water Information Reporting Database (DWER 2023c), undertaken as part of the PSI (Senversa 2024a), indicated that there are no registered on-site groundwater bores. There were 89 registered groundwater bores within 0.5 km of the site boundary. Review of bore locations and available information indicates groundwater bores may be associated with stormwater drainage, water catchments, or monitoring of groundwater conditions surrounding contaminating sites. A search of the DWER Water Register (DWER 2023d) undertaken during the PSI (Senversa 2024a) reported 22 licenced abstractions within a 1 km radius of site boundary. All groundwater abstraction licences were for the Perth – Superficial Swan Aquifer. Alcoa currently hold an active 5C Groundwater Licence to Abstract Water within the Superficial Swan Aquifer (DWER 2023d). Alcoa's recovery bores are located immediately south of the site boundary (off Anketell Road). These bores are installed to pump and intercept impacted groundwater leaving the Alcoa facilities (Golder 2022). Based on the information above, it is considered that licenced groundwater abstraction is predominately used for irrigation of council, private properties and potentially dewatering for industrial uses such as dust suppression and manufacturing/processing with resultant discharge. **Public Drinking Water Source Areas (PDWSA)** There are no PDWSAs located within the site boundary. The nearest PDSWA are located approximately 300 m east of the eastern site boundary (up hydraulic gradient of the site). Given the location of the PDWSA, being up hydraulic gradient of the site, together with the likely availability of scheme water and the mixed-use suburban and public open space nature of the area surrounding the site, drinking water has been excluded as a likely beneficial use of groundwater considered as part of this assessment. **Groundwater Beneficial Use** Based on the above information, the following beneficial uses of groundwater are considered likely for the site: • Irrigation / landscaping irrigation. • Industrial – abstraction for processing purposes or remediation. • Non-potable use including, dust suppression for construction and development, domestic irrigation and recreational use via private bores. • Maintenance of aquatic ecosystems.

Item	Details
Flora and Fauna	There are no known threatened flora present within the vicinity, but native vegetation and rehabilitated units were found within the project area (Landgate 2023b). No priority species or species listed as Threatened under the Environment Protection and Biodiversity Conservation (EPBC) Act or Biodiversity Conservation Act were directly observed in the project area, although online mapping indicates the potential for those species to be present within the site boundary.
Wetlands and Sensitive Ecosystems	No Ramsar listed wetlands are present onsite or within a 500 m radius of the site. There was one instance where a geomorphic wetland intersected the site between Clement Road and Mandogalup Road. Several geomorphic wetlands are also present within a 1 km radius of the site and have been identified in the PSI (Senversa 2024a). The site intersects three environmentally sensitive areas and is located within a 1 km radius of three Bush Forever sites and various groundwater dependent ecosystems, as identified in the PSI (Senversa 2024a).
Aboriginal Heritage	A review of the Aboriginal Heritage Inquiry System (DPLH 2023a) identified no on-site heritage areas and one aboriginal heritage feature located within a 1 km radius of the site. During the DSI, a heritage investigation was being undertaken in the vicinity of the Spectacles Wetlands. At time of report submission, this location has not been officially classified.
European Heritage	A search of the Australian Heritage Database, completed during the PSI (Senversa 2024a), indicated that there are no heritage sites listed on-site or within 500 m of the site.
Underground Utilities	A review of Before You Dig Australia (BYDA) plans was undertaken in October 2024. The overall area of the site was too large for some BYD searches, limiting the availability of specific data. The search, and subsequent service location, identified assets belonging to the following service providers are presented in the close vicinity of the site: • ATCO/BOC/Dampier Bunbury Natural Gas Pipeline. • ATOM • NBN Co. cables and infrastructure. • Optus, TPG, Vocus, NextGen - communications fibre optics and internet network. • Water Corporation sewerage and drainage networks. • Western Power electricity and power network including low and high voltage below and above ground power line. • Public Transport Authority – Bus Stops. • BP Refinery – Unknown. • CSBP – Unknown. The presence of utilities (and associated trenches) can be indicative of preferential pathways being created for potentially contaminated groundwater and vapour (in particular) to migrate beneath the site. Some utilities may also act as a contamination source. In this regard the following observations are made: • Dampier to Bunbury Natural Gas Pipeline (DBNGP) intersects with the far Western portion of site towards Kwinana, intersects Anketell Road. Presumably the DBNGP is a deeper utility than some more common utilities. • ATOM pipeline (which is assumed to be a hydrocarbon fuel pipeline) runs along Rockingham Road and intersects the site at Anketell Road beyond which it detours in a northeasterly direction along the rail reserve. • Water pressure mains and sewerage pressure mains (Water Corporation) run alongside Anketell Road (Landgate 2023b). Subsurface pipe networks appear to be present within the site boundary and may comprise PACM moulded cement or insulation.

3.0 Site History

3.1 Freedom of Information Requests

Freedom of Information requests were for the site and the surrounding areas were submitted as part of the PSI (Senversa 2024a), with the searches being largely unsuccessful due to size and complexity of the site and as such have not been included in this report.

3.2 Contaminated Sites

The DWER maintains a list of properties that have been notified to the DWER under the CS Act as known or suspected contaminated site, known as the Contaminated Sites Database. The database includes sites that are classified as:

- Contaminated – remediation required (CRR).
- Contaminated – restricted use (CRU).
- Remediated for restricted use (RRU).

The publicly accessible database does not include sites that have been classified as 'Potentially Contaminated – investigation required' (PCIR) or sites that have been reclassified as 'Decontaminated'.

A search of the DWER Contaminated Sites Database was completed in the PSI (Senversa 2024a) and indicated that some areas of the site to the west of Kwinana Freeway have been classified as CRR, CRU and RRU. The basic summary of records (BSRs) are available in the PSI.

A BSR for the Abercrombie Road Resource Recovery Centre (Lot 115 on Plan 48295) was requested as part of the DSI but was not available in time for inclusion in this report. A BSR was requested for this site due to the potential presence of groundwater impacts associated with the site usage (solid waste facility) that may impact the ability of groundwater to abstracted and used on site during the project.

3.3 Review of Publicly Available Information

In lieu of BSR documentation, a review of publicly available information was undertaken for the Abercrombie Road Resource Recovery Centre (Lot 115 on Plan 48295). A summary of the available information is presented below in **Table 3-1.** Reviewed documents are available in **Appendix A**.

Table 3-1: Summary of Lot 115 on Plan 482951

Location	Classification	Summary
Up-gradient (adjacent to site) (Abercrombie Road)	PCIR	The site is understood to be used by Eclipse Soils as a Resource Recovery Centre. The site operates under EP Licence L8974/2016/2, Category 61A: Solid waste facility and Category 67A: Compost manufacturing and soil blending. The site is authorised to receive clean fill, ASS and PASS, Class I, Class III and Class IV (hydrocarbon and pesticide contaminated soils), ACM and green waste. The Part V Decision Document (May 2019) indicates that previous groundwater data has identified the presence of salts, nitrogen, dieldrin and some metals (arsenic, chromium, copper, iron and zinc) however the groundwater data series is inconclusive to determine if the premises activities have impacted on water quality, given the limited availability of background data. Additional groundwater monitoring has been recommended as part of the updated licence conditions for the site.

3.4 Review of Site Reports and Records

Historical site investigations for the site and its surrounds were provided by Main Roads and have been summarised in the PSI (Senversa 2024a). An additional document, Preliminary Groundwater Level Assessment (FSG 2024) was provided by Main Roads during the DSI and has been summarised below in **Table 3-2**.

Table 3-2: Summary of Previous Site Investigations

Report Reference	Summary
FSG Geotechnics and Foundations (2024) Anketell Road Upgrade Project – Preliminary Groundwater Level Assessment. 17 December 2024.	FSG were commissioned to undertake a groundwater level assessment to assess the potential groundwater impacts caused by groundwater abstraction and dewatering during project construction. The scope of work included an assessment of groundwater level contours, development of a 3D numerical groundwater flow model and modelling of dewatering (proposed underpass at Treeby Road) / abstraction scenarios. A summary of the outcomes of the FSG report is provided below: • Localised groundwater flow direction is influenced by abstraction / infiltration from neighbouring industrial sites and environmental surrounds. Notable influences include: ▪ Treated wastewater re-infiltration in the area around the Kwinana wastewater treatment plant in the order of 4.7 ML/d, which results in groundwater mounding. ▪ Daily tidal influence was evident in western wells screened within the Talama Limestone, some 600 m from the ocean, and may result in saline water intrusion. ▪ A perched groundwater table exists within the of the Kwinana Motorplex and may be intersected by potential works in that area. • The potential for groundwater to be impacted by neighbouring industrial sites and associated pumping risks has been assigned a relative ranking of low, moderate and high risk by FSG. The location of each construction water production bore falls within a low-risk zone. • The most complex hydrogeology is located to the east of site, where a dive structure is potentially to be located. • The superficial aquifer located on site is assumed to be highly transmissive, with low modelled draw-down. • Approximately 430,000 kL of water is estimated to be used during construction. • FSG proposed the installation and sampling of several additional monitoring wells to close potential groundwater data gaps, including the establishment of relevant baseline data, clarify current hydrogeological conceptual understanding and gain a better hydrogeological understanding is more complex hydrogeological areas. It is noted that this DSI has not considered the various dewatering / abstraction scenarios assessed within FSG (2024) at the instruction of Main Roads, recognising the preliminary nature of the dewatering plan.

3.5 Site History Summary

A review of the publicly available historical aerial imagery indicates that aside from areas around the Kwinana Motorplex, the site has mainly been utilized as a primary road transport corridor. The areas surrounding the site were primarily agriculturally based until the 1970s upon which the Alcoa refinery and residue dams were constructed in the central and western portions of the site, respectively. Further industrial and agricultural development was observed surrounding the site until approximately 2005, upon which minimal changes were observed.

The size and complexity of the site posed challenges for reviewing its history, leading to unsuccessful FOI requests from regulatory agencies and local governments. An examination of publicly available online databases revealed several reported contaminated sites, including the Abercrombie Road Resource Recovery Centre, with impacted soil and groundwater, located immediately adjacent to the site boundary.

Consequently, some lots, particularly within the west and central portion of the site, have been classified as 'affected sites' due to impacts from these off-site sources.

Previous environmental investigations have identified indications of PASS and ASS within the site boundary, especially in the eastern portion. Historical geotechnical reports have indicated that site groundwater is hosted in an assumed highly transmissive aquifer and is potentially impacted by surrounding land uses. The baseline status concerning other CoPCs remains largely unknown.

4.0 Preliminary Conceptual Site Model

4.1 CSM Introduction

A CSM describes the possible pathways by which exposure to potential contamination may occur. For exposure to occur, a complete pathway must exist between the source of contamination and the receptor (i.e. the person or ecosystem components potentially affected by the contamination). Where the exposure pathway is incomplete, exposure cannot occur, leaving no risk via that pathway. An exposure pathway will typically consist of the following elements:

- A source of contamination (e.g. a leak or spill).
- A release mechanism (e.g. migration in soil, leaching to water, emission to air).
- Retention in the transport medium (e.g. soil, groundwater, surface water or air).
- An exposure point (e.g. where a person comes into contact with contaminated dust or soil, or contaminated groundwater from a well, or in a building overlying volatile contamination).
- An exposure route (e.g. inhalation, ingestion, absorption through the skin).

4.2 APECs

Table 4-1 summarises the APECs collectively identified during the PSI (Senversa 2024a), with the exception of the following:

- Addition of APEC 20, Resource Recovery Centre, which was identified during the DSI as an additional APEC requiring consideration as part of the project.
- Cooling ponds, located west of the Kwinana WWTP, that send up to 1 GL of treated wastewater to the Alcoa aluminium refinery per year have been included as part of APEC 7.

The location of the APECs are presented in **Figure 3a** and **Figure 3b**, attached. Changes from the PSI (Senversa 2024a) have been underlined for clarity.

In general terms, decision-making regarding evaluation of the contamination status and relevance of each APEC to represent a contamination source was based upon holistic consideration of the following lines of evidence:

- Whether the issue is considered trivial in nature.
- Documented evidence (or reasonable inferences) of historical potentially contaminating land-use activities (having regard to DWER [2021] guidelines) identified from the desk-based review.
- Historical investigation findings (inferred through BSR information).
- For off-site APECs, the distance to the site and orientation relative to inferred groundwater direction.
- Visual and/or olfactory indicators of contamination identified during the site inspection.

Table 4-1: Summary of APECs and Potential Sources of Contamination

APEC	Description and Potential Source of Contamination	CoPCs
APEC 1: Scattered PACM fragments	Visual evidence of fly-tipping, including PACM scatter, on site between Brown Avenue and Rockingham Road.	• Asbestos
APEC 2: Better Choice Fuel Station	Fuel storage and dispensing activities present a higher risk of land contamination. Aerial imagery shows that the site has operated as a fuel station since around 2000, making fuel leaks and spills plausible.	• Hydrocarbons • Lead
APEC 3: Deep sump within vegetated area	Adjacent to registered contaminated site (DMO 15657) and likely to receive/store potentially impacted runoff/stormwater.	• Nutrients • Pathogens • Pesticides • Herbicides • Per-and polyfluoroalkyl substances (PFAS) • Hydrocarbons • Metals
APEC 4: Sodium hydroxide solution pipeline	The APEC is classified as CRR under the CS Act (DMO 15659) with groundwater impacted by arsenic, aluminium, molybdenum fluoride, chloride and elevated alkalinity. The site operates under a site management plan for the excavation/disturbance of soils.	• Metals • Alkalinity
APEC 5: Agricultural open sump and drain (western end)	The APEC is located downgradient of agricultural land uses, a fire station and in close proximity to sites classified under the CS Act (DMO 74385 - Alumina Refinery and DMO 4003 - Mandogalup Pioneer Reserve). The drain has the potential of discharging collected storm/runoff water into the Spectacles Wetlands.	• Nutrients • Pathogens • Pesticides • Herbicides • PFAS • Hydrocarbons • Metals
APEC 6: Mandogalup Fire Service	The APEC is the site of an active fire station with the potential for historical and current use and storage of aqueous firefighting foams (AFFF) or other PFAS containing material.	• PFAS • Hydrocarbons
APEC 7: Kwinana WWTP / Capital Recycling / Cooling Ponds	The APEC contains an active wastewater treatment plant to the north, a recycling plant to the south and treated wastewater cooling ponds to the west. The site has been classified as PCIR under the CS Act (DMO 3171) due to groundwater contamination with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity, likely a result of disposal of mineral processing waste from the adjacent bauxite/aluminium processing facility.	• Nutrients • Pathogens • PFAS • Metals • Alkalinity
APEC 8: Alumina Refinery	The APEC is currently utilised as an alumina refinery and classified CRR under the CS Act (DMO 74385) and as a source site due to alkali impacted groundwater. This site receives treated wastewater from the Kwinana WWTP, located to the south of the Alcoa facility. Abstraction of groundwater from this APEC is restricted to remediation of contamination and industrial refinery purposes.	• Metals • Alkalinity
APEC 9: Mandogalup Pioneer Reserve	The APEC is classified as PCIR under the CS Act (DMO 4003) as a result of an alkali groundwater contamination plume emanating from an adjacent site.	• Metals • Alkalinity
APEC 10: Vacant land	The APEC classified as CRR under the CS Act (DMO 15659 and DMO 15660) and is restricted to commercial/industrial use only due to groundwater impacted by arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity. Groundwater abstraction is only permitted as part of an on-going groundwater remediation program as long as purged water is sent to an appropriate disposal facility.	• Metals • Fluoride • Chloride • Alkalinity

APEC	Description and Potential Source of Contamination	CoPCs
APEC 11: Part of Kwinana Motorplex (eastern portion, south of Anketell Road)	The APEC is classified under the CS Act as CRR (DMO 15657) and is restricted to commercial/industrial use only due to groundwater impacted by arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity. Groundwater is not suitable for use without treatment for the presence of contamination and no soils may be excavated or disturbed without the implementation of a health, safety and environmental management plan.	• Metals • Fluoride • Chloride • Alkalinity
APEC 12: Kwinana Motorplex, immediately adjacent to Rockingham Road, and south of Anketell Road	The APEC is use as a motor vehicle race track and is classified under the CS Act as CRR (DMO 15656). Groundwater abstraction is only permitted, as part of an on-going groundwater remediation program. Site soils may only be excavated or disturbed with the implementation of a health, safety and environmental management plan.	• Metals • Fluoride • Chloride • Alkalinity
APEC 13: Semi-rural property with residential dwelling	The APEC is classified under the CS Act as PCIR (DMO 74386) due to an alkali groundwater plume present beneath the site.	• Metals • Fluoride • Chloride • Alkalinity
APEC 14: Commercial yard	The APEC is classified under the CS Act as PCIR (DMO 2623) due to hydrocarbon impacts in soils and groundwater. The site was historically utilised as a commercial yard and fuel storage and distribution facility.	• Hydrocarbons
APEC 15: Millenium Metals Scrapyard	The APEC is currently used as a metal scrap yard and has been classified under the CS Act as PCIR (DMO unknown).	• Metals
APEC 16: Rail siding	The APEC and has been classified under the CS Act as PCIR (DMO 5083) as a result an historical spill event of approximately one million litres of saline cooling water on to site soils and groundwater. The cooling water was alkaline and contained elevated levels of sodium hydroxide and sodium carbonate.	• Salinity
APEC 17: Inferred Alcoa alumina residue storage pond affected sites	The APEC consists of numerous sites classed as PCIR under the CS Act as a result of a metal impacted groundwater plume from a neighbouring site.	• Metals • Fluoride • Chloride • Alkalinity
APEC 18: Former service station	The APEC was historically used as a service station and is classified under the CS Act as CRU (DMO 81972), due to hydrocarbons present in the groundwater. The site groundwater is not suitable for use without treatment for the presence of hydrocarbon contamination.	• Hydrocarbons
APEC 19: ATOM pipeline (inferred hydrocarbon fuel pipeline)	The APEC houses an inferred hydrocarbon-fuel pipeline. No information regarding potential historical spill events is available, the potential exists for long-term minor leaks to occur along the length of the pipe.	• Hydrocarbons
APEC 20: Resource Recovery Centre	The APEC is classified under the CS Act as PCIR (BSR pending). The site operates under EP Licence L8974/2016/2, Category 61A: Solid waste facility and Category 67A: Compost manufacturing and soil blending. The site is authorised to receive clean fill, ASS and PASS, Class I, Class III and Class IV (hydrocarbon and pesticide contaminated soils), ACM and green waste. The facility is located immediately east and hydraulically upgradient of the site boundary along Abercrombie Road.	• Hydrocarbons • Pesticides • Nutrients • Asbestos

4.3 Exposure Pathways and Transport Mechanisms

For the purpose of this assessment, possible exposure pathways are identified as natural and/or man-made pathways for the preferential migration of CoPC in dust, liquid and/or gaseous state. Potential contaminant migration pathways for the CoPCs include:

- Volatilisation of CoPCs in soil, surface water and groundwater followed by inhalation.
- Degradation of organic material and associated production of ground gases, followed by inhalation of ground gases, asphyxiation and/or creation of explosive atmospheres. [This pathway is specific to APEC 12 (Kwinana Motorplex facility and adjacent landfill)].
- Direct contact with contaminated soil (including subsequent incidental ingestion).
- Direct contact with contaminated surface water (including subsequent incidental ingestion).
- Airborne dust generation followed by inhalation of dust (including asbestos fibres).
- Leaching of contaminants from soil to groundwater.
- On-site and off-site abstraction of impacted groundwater (e.g. dewatering during construction, abstraction for construction dust suppression purposes).
- Contaminated groundwater discharge to receiving surface water receptors via lateral movement along the groundwater flow path.
- Contaminated surface water and sediment run-off aquatic receptors including the Spectacles wetlands.
- Migration of CoPC impacts along preferential pathways including underground services.

The above list of exposure pathways and transport mechanisms reflects the high number and variety of APECs and associated CoPCs listed in **Section 4.2** (and absence of investigation data in many instances).

4.4 Receptors

For the purpose of this assessment, ‘receptors’ include people, ecological receptors, groundwater and water supply wells that are, or may be, adversely affected by the CoPCs. Potential receptors on or near to the site, which have exposure pathways that may be complete include the following:

- Construction workers conducting excavations, dewatering, or clearing within impacted areas of the grade separations that may come into direct contact with impacted soil, soil vapour, landfill gas and groundwater.
- Future maintenance workers that may come into direct contact with impacted soil, soil vapour, landfill gas and groundwater.
- Future site users under ongoing use as public open space (i.e. cycle and footpaths and parks adjacent to the site) and road reserve.
- Groundwater and any users of groundwater off-site such as for reticulation and other non-potable beneficial uses.
- Ecological receptors, most significantly the Spectacles wetlands nearby to the eastern portion of the site.
- Surrounding residential, commercial and industrial land users.

4.5 Assessment of Risk to Environment and Human Health

A large number and variety of APECs have been identified as potential sources that may pose a plausible risk to human health and/or the environment. For some APECs, no known soil or groundwater investigations have been performed, other APECs have recorded investigations (and in some cases also remediation), however the external reports where not obtained and reviewed and therefore have not been included in the CSM.

From **Section 4.2** the types of APECs can broadly be categorised as follows:

- Scattered PACM debris (cement sheeting fragments).
- Fuel storage, transport and dispensing.
- Alumina refinery and ancillary infrastructure.
- Open sumps and drains (also potentially represent a contaminant pathway and receptor).
- Firefighting depot.
- Wastewater treatment.
- Landfilling.
- Scrapyard.

The presence of scattered PACM debris is the only identified APEC identified that is associated with the use of the site as a road reserve. All other APECs relate to surrounding industry. In the context of the proposed transport corridor works potentially unacceptable source pathway receptor (SPR) linkages include:

- Exposure of site construction workers and future maintenance workers to contaminated soil disturbed by civil earthworks. This includes potential sources that are wholly within the defined site or where site encroaches into private land and the level of disturbance is unclear (for instance the alumina residue ponds in APEC 17).
- Exposure of site construction workers and future maintenance workers to contaminated groundwater dewatered during earthworks works (including groundwater abstraction for dust suppression purposes).
- Exposure of site construction workers and future maintenance workers to soil vapours and landfill gas during earthworks.
- Exposure of site construction workers and future maintenance workers to contaminated surface water during earthworks.
- Exposure to off-site land users, plus terrestrial and aquatic ecology from contaminated soil, groundwater or surface water emissions from the site (including reuse of contaminated media elsewhere).

In addition, there is a medium to high risk of ASS being present within 3 m of the natural surface in portions of the site. Where ASS is not appropriately managed resultant soil acidification and mobilisation of metals can lead to groundwater and surface water deterioration that in some circumstances may constitute contamination.

For some of the APECs, including parts of the site, existing CS Act classification restrictions aim to mitigate potential SPR linkages (although not necessarily specific to major transport corridor road works). These restrictions variously include:

- Land use restrictions.
- Groundwater abstraction restrictions.
- Implementation of health, safety and environmental management plans prior to disturbing soil.
- Restriction on basement structures.

Provision of detailed project design information would enable further contextualisation of CSM risks. This is particularly the case with regard to:

- Finished road levels and the need to undertake deep excavation (and where).
- The extent to which private land within the site boundary will actually be disturbed.
- Drainage design information and the potential to exacerbate groundwater contamination issues.

4.6 Source-Pathway Receptor Linkage Assessment Summary

The CSM remains largely unchanged from the SAQP, with the exception of being presented in a tabulated format and the addition of APEC 20 and cooling ponds to APEC 7. Any changes have been underlined for clarity. The CSM is summarised in **Table 4-2** along with an assessment of whether SPR linkages identify data gap/s which require further investigation. The SPR linkages have been variously categorised as one of the following.

- **Incomplete** – linkage likely to be incomplete.
- **Potentially Complete** – linkage potentially complete. Further data collection required to close data gaps and confirm whether pathway is complete or potentially significant in terms of risk.
- **Complete** – linkage likely to be complete. Based on available information, a complete, existing, exposure pathway has been identified.

Table 4-2: Preliminary Conceptual Site Model (Senversa 2024a)

APEC	CoPC	Transport Mechanism	Receptors	Exposure Routes	Complete?	SPR Linkage / Discussion
APEC 1: Scattered PACM fragments	• Asbestos	• Surface entrainment via wind and overland flow. • Dust migration from disturbance activities.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Off-site residential, commercial and industrial land users.	• Inhalation of airborne respirable asbestos fibres (where ACM is disturbed).	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • Fibre cement, in good, bonded condition, suspected as PACM scatter was observed during the site inspection. • Fly-tipping was observed during the site inspection. • Confirmatory laboratory testing indicated the collected sample did not contain asbestos. However, it may not be representative of other fibre cement fragments potentially present. • The preliminary nature of the site inspection together with the extensive vegetation and site access issues did not enable a comprehensive asbestos in soil survey. • Construction activities have the potential of creating a fibre release event if ACM material is disturbed. • In addition to human health risk uncertainties, the presence of ACM and materials that may be perceived as ACM may pose aesthetic concerns to site users.
APEC 2: Better Choice Fuel Station	• Hydrocarbons • Lead	• Volatilisation of CoPCs present in soil or groundwater. • Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Inhalation of volatile gases present in soil or groundwater. • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	This SPR linkage is considered to be **Potentially Complete** due to the following: • No environmental data is available for the APEC. • The APEC use for fuel storage and dispensing activities presents a risk for historical fuel leaks and spills. • Information regarding the storage of dangerous/hazardous goods and reportable environmental incident of the APEC is unknown. • Construction activities have the potential of interacting with potentially impacted soils and groundwater present on the APEC.
APEC 3: Deep sump within vegetated area	• Nutrients • Pathogens • Pesticides • Herbicides • PFAS • Hydrocarbons • Metals	• Volatilisation of CoPCs present in soil or groundwater. • Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater/ surface water). • Inhalation of volatile gases present in soil or groundwater. • Direct contact and uptake by flora/fauna from impacted soil, surface water and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • No environmental data is available for the APEC. • This APEC is likely to receive potentially impacted surface/stormwater runoff from neighbouring registered contaminated sites. • Steep ground topography present has the potential to create a preferential pathway for surface water migration into the APEC. • Construction activities have the potential of interacting with potentially impacted soils and groundwater present on the APEC.
APEC 4: Sodium hydroxide solution pipeline	• Metals • Alkalinity • Major Ions	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified as CRR under the CS Act (DMO 15659) with groundwater impacted by arsenic, aluminium, molybdenum fluoride, chloride and elevated alkalinity. • Construction activities may interact with impacted groundwater on the site. • A site management plan is required for any excavation/disturbance activities conducted in the APEC. • No historical soil investigations have been undertaken on the site and therefore the environmental condition of site soils is currently unknown. • Construction activities have the potential of interacting with potentially impacted soils and groundwater present on the APEC.

APEC	CoPC	Transport Mechanism	Receptors	Exposure Routes	Complete?	SPR Linkage / Discussion
APEC 5: Agricultural open sump and drain (western end)	• Nutrients • Pathogens • Pesticides • Herbicides • PFAS • Hydrocarbons • Metals	• Volatilisation of CoPCs present in soil or groundwater. • Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater/ surface water). • Direct contact and uptake by flora/fauna from impacted soil, surface water and abstracted groundwater. • Inhalation of volatile gases present in soil or groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC appears to have been utilised as an open drain dating back to 1953. • The drain may be a receptacle for potentially impacted stormwater/surface runoff from nearby agricultural areas, registered contaminated sites and an operational fire station • Visual evidence from the PSI (Senversa 2024a) identified water contained within the drain following south into a nearby environmental receptor (the Spectacles wetland). • Construction activities have the potential of interacting with potentially impacted soils and groundwater present on the APEC.
APEC 6: Mandogalup Fire Service	• PFAS • Hydrocarbons	• Volatilisation of CoPCs present in soil or groundwater. • Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater. • Inhalation of volatile gases present in soil or groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • No environmental data is available for the APEC. • The APEC is active fire station with the potential for historical and current use and storage of AFFF foam or other PFAS containing material • Drains and other sub-surface infrastructure were observed during the PSI (Senversa 2024a). • Construction activities have the potential of interacting with potentially impacted soils and groundwater present on the APEC.
APEC 7: Kwinana WWTP / <u>Cooling Ponds</u>	• Nutrients • Pathogens • PFAS • Metals • Alkalinity	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Current site workers. • Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is a classified as PCIR under the CS Act and a licenced premises under the EP Act. • A historical spill of raw sewage was reported to DWER (formally DER) in 2011, some remediation (exaction of solids) was reported to have been undertaken. • Previous investigations have identified nutrients in groundwater above ecological, but not human health, guidelines with groundwater inferred to flow eastward to the Spectacles wetlands. • The presence of the DBNGP within the APEC may hamper characterisation due to the inability of vehicles to cross over the pipeline without authorisation/approval. • Construction activities have the potential of interacting with impacted soils and groundwater present on the APEC.
APEC 8: Alumina Refinery	• Metals • Alkalinity	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Current site workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is utilised as an alumina refinery and classified as CRR under the CS Act. • Potentially contaminating land uses on the APEC include an alumina refinery, residue storage and disposal areas, cooling ponds and pipelines. • The APEC comprises a source of alkali groundwater contamination that has migrated off-site to affect neighbouring land parcels with groundwater for any use outside of remediation or use in the refinery is restricted. • Construction activities have the potential of interacting with impacted soils and groundwater present on the APEC.
APEC 9: Mandogalup Pioneer Reserve	• Metals • Alkalinity	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified as PCIR under the CS Act (DMO 4003). • Groundwater beneath north-west portion of site is affected by an alkali groundwater contamination plume emanating from adjacent Lot 100 Anketell Road (source site). • Groundwater contamination plumes from the source site are being actively managed via recovery bores and periodic monitoring. • Investigations on the site are limited and do not meet DWER guidelines. • Construction activities have the potential of interacting with potentially impacted soils and groundwater present on the APEC.

APEC	CoPC	Transport Mechanism	Receptors	Exposure Routes	Complete?	SPR Linkage / Discussion
APEC 10: Vacant land	• Metals • Fluoride • Chloride • Alkalinity	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified as CRR under the CS Act (DMO 15659 and DMO 15660). • Groundwater is contaminated with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity. • Groundwater abstraction is only permitted as part of an on-going groundwater remediation program as long as purged water is sent to an appropriate disposal facility. • Although no soil investigations have been undertaken, APEC soils may only be excavated or disturbed with the implementation of a health, safety and environmental management plan. • The site is restricted to commercial/industrial use only. • Construction activities have the potential of interacting with potentially impacted soils and groundwater present on the APEC.
APEC 11: Part of Kwinana Motorplex (eastern portion, south of Anketell Road)	• Metals • Fluoride • Chloride • Alkalinity	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Current site workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified under the CS Act as CRR (DMO 15657). • Groundwater is contaminated with arsenic, aluminium, molybdenum, fluoride, chloride and elevated alkalinity. • Groundwater is not suitable for use without treatment for the presence of contamination. • No soils may be excavated or disturbed without the implementation of a health, safety and environmental management plan. • Construction activities have the potential of interacting with potentially impacted soils and groundwater present on the APEC.
APEC 12: Kwinana Motorplex, immediately adjacent to Rockingham Road, and south of Anketell Road	• Metals • Fluoride • Chloride • Alkalinity	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Current site workers • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified under the CS Act as CRR (DMO 15656). • The APEC was historically used for the disposal of mineral processing waste from the adjacent bauxite/aluminium processing facility, and for a pipeline for the transportation of mineral processing waste and operating landfill. • No soils may be excavated or disturbed without the implementation of a health, safety and environmental management plan. • Groundwater abstraction, as part of an on-going groundwater remediation program, is permitted provided all groundwater is sent to an appropriate disposal facility. • Construction activities have the potential of interacting with impacted soils and groundwater present on the APEC.
APEC 13: Semi-rural property with residential dwelling	• Metals • Fluoride • Chloride • Alkalinity	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers.' • Human health – Current site workers • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified under the CS Act as PCIR (DMO 74386). • No soil investigations have been carried out and the quality of the soils are unknown. • Alkali groundwater plumes are present beneath site. • Construction activities have the potential of interacting with potentially impacted soils and impacted groundwater present on the APEC.
APEC 14: Commercial yard	• Hydrocarbons	• Volatilisation of CoPCs present in soil or groundwater. • Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Current site workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater. • Inhalation of volatile gases present in soil or groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified under the CS Act as CRR (DMO 2623). • The APEC was historically used as a commercial yard and fuel storage and distribution facility. • Hydrocarbon contamination has been identified in soils within the south-east of the site and groundwater contamination within the superficial aquifer at 10 m depth across the site. • Construction activities have the potential of interacting with potentially impacted soils and impacted groundwater present on the APEC.

APEC	CoPC	Transport Mechanism	Receptors	Exposure Routes	Complete?	SPR Linkage / Discussion
APEC 15: Millenium Metals Scrapyard	• Metals	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified under the CS Act as PCIR (DMO unknown). • The potential exists for the mobilisation of metals from site use into the underlying APEC soils. • Construction activities have the potential of interacting with potentially impacted soils groundwater present on the APEC.
APEC 16: Rail siding	• Salinity • Alkalinity	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified under the CS Act as PCIR (DMO 5083). • The APEC was classified due to one million litres of saline cooling water, containing elevated sodium hydroxide and sodium carbonate, to soils and groundwater. It is understood that excavation of the impacted material was undertaken, however validation of the effectiveness of remediation of the spill event is unknown. • No previous soil or groundwater investigations have been carried out. • Construction activities have the potential of interacting with potentially alkali impacted soils and groundwater present on the APEC.
APEC 17: Inferred Alcoa alumina residue storage pond affected sites	• Metals • Fluoride • Chloride • Alkalinity	• Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • This APEC comprises of multiple locations that are all classified as PCIR under the CS Act. • The classification is inferred to be the result of metal impacted groundwater extending from a plume from the retired alumina residue storage area. • No environmental investigations have occurred in this APEC. • Construction activities have the potential of interacting with potentially impacted soils and impacted groundwater present on the APEC.
APEC 18: Former service station	• Hydrocarbons	• Volatilisation of CoPCs present in soil or groundwater. • Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater. • Inhalation of volatile gases present in soil or groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC is classified under the CS Act as CRU (DMO 81972) due to hydrocarbons present in the groundwater beneath the APEC. • The APEC was historically used as a service station. • Groundwater beneath this site is not suitable for use without treatment for the presence of hydrocarbon contamination. • Construction activities have the potential of interacting with potentially impacted soils and impacted groundwater present on the APEC.
APEC 19: ATOM pipeline (inferred hydrocarbon fuel pipeline)	• Hydrocarbons	• Volatilisation of CoPCs present in soil or groundwater. • Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater. • Inhalation of volatile gases present in soil or groundwater.	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC likely contains an inferred hydrocarbon pipeline. • No environmental investigations have occurred in the APEC. • There is the potential for unreported, minor or major, hydrocarbon spills that may have historically occurred within the APEC. • Construction activities have the potential of interacting with potentially impacted soils and groundwater present on the APEC.

APEC	CoPC	Transport Mechanism	Receptors	Exposure Routes	Complete?	SPR Linkage / Discussion
APEC 20: Resource Recovery Centre	• Hydrocarbons • Pesticides • Nutrients • Asbestos	• Volatilisation of CoPCs present in soil or groundwater. • Leaching and infiltration of impacted surface soils to underlying soils. • Runoff of impacted soils subsequent discharge within site boundaries. • Infiltration/leaching to groundwater. • Abstraction of groundwater. • Migration of CoPC impacts along preferential pathways. • Surface entrainment via wind and overland flow. • Dust migration from disturbance activities.	• Human health – Future construction and maintenance workers. • Human health – Future public open space and recreational users. • Human health – Future abstractors of groundwater. • Human health – Off-site residential, commercial and industrial land users. • Ecological health – Aquatic ecosystems, mainly present within the Spectacles wetlands.	• Direct contact including incidental ingestion (soils/abstracted groundwater). • Direct contact and uptake by flora/fauna from impacted soil, and abstracted groundwater. • Inhalation of volatile gases present in soil or groundwater. • Inhalation of airborne respirable asbestos fibres (where ACM is disturbed).	Potentially Complete	The SPR linkage is considered to be **Potentially Complete** due to the following: • The APEC likely contains a solid waste and compost manufacturing facility. • The status of environmental investigations at the APEC is unknown. • There is the potential for contamination to have occurred within the APEC. • Construction activities have the potential of interacting with potentially impacted groundwater present on the APEC.

5.0 Data Quality Objectives

The data quality objectives (DQOs) for this DSI were developed based on the seven-step process presented in the ASC NEPM and were unchanged as per the SAQP (Senversa 2024b).

The DQO process has been tailored to suit the specific nature of the project and has been designed to be both consistent with the principles of DQO development and be fit for purpose (i.e. represent a logical rationale to inform and organise the data collection and implementation aspects of the project).

The ASC NEPM endorsed 'seven step DQO process' as follows:

1. Step 1: State the problem.
2. Step 2: Identify the decision/ goal of the study.
3. Step 3: Identify the information inputs.
4. Step 4: Define the boundaries of the study.
5. Step 5: Develop the analytical approach/ decision rules.
6. Step 6: Specify performance or acceptance criteria.
7. Step 7: Develop the plan for obtaining data.

DQO's for each of the identified data gaps are presented in **Table 5-1**.

Table 5-1: Data Quality Objectives

DQO	Data Gap 1: Baseline Site Conditions	Data Gap 2: Potential Contamination Risks in Areas of Potential Project Disturbance	Data Gap 3: Potential ASS Risks in Areas of Potential Project Disturbance
1. Problem Statements	• A number of APECs have been identified with regard to potential contamination that may be disturbed by the project. • Moderate to high ASS risks exists within portions of the site that may be disturbed by the project. • Establishment of baseline conditions will enable project-related disturbances and associated contamination and ASS management performance to be assessed.	• A number of APECs have been identified with regard to potential contamination that may be disturbed by the project. • There are various disparate studies performed by nearby properties under the CS Act however these are not specifically orientated towards characterising the site for the purposes of the project. • Project specific contamination characterisation is considered warranted to further verify potential contamination risks and appropriate management measures.	• Moderate to high ASS risks exists within portions of the site that may be disturbed by the project. • Some ASS assessment has been performed by geotechnical investigations however such investigations are focused more on structure related risks. • Project specific ASS characterisation is considered warranted to further verify potential ASS risks and appropriate management measures.
2. Study Goals	To collect data that addresses critical CSM uncertainties in the context of the proposed transport corridor upgrade project. The resultant information will in turn support project planning and management. Additional characterisation may be warranted based on final, detailed design and to further optimise environmental management such as with regard to waste characterisation, ASS treatment and so on.		
3. Decision Inputs	• Existing data from historical reports and investigations. • ASS risk mapping. • Main Roads preliminary road design information. • Representative soil and groundwater analytical data (the proposed scope of work is presented in **Section 7.0**). • Tier 1 investigation levels (ILs) and ASS trigger levels as presented in **Section 6.0**.		
4. Define Study Boundaries	Spatial: Investigations were undertaken within the site boundary (**Figure 1**), as determined by Main Roads. The soil sampling locations as shown on **Figure 4a** and **Figure 4b**. The groundwater sampling locations as shown on **Figure 6a** and **Figure 6b**. Vertical investigation of soil and groundwater has taken into account Main Roads preliminary road design information. Temporal: The investigation took place in late 2024 and early 2025.		
5. Decision Rules	Media type (as applicable) will be considered impacted if the CoPCs are identified above background concentrations or adopted ILs. ASS will be considered to be present where ASS results exceed ASS trigger levels. If impacted, is the extent of impacts adequately characterised to inform the stated study goal? • If no, consider recommendations for further characterisation or alternative approaches. • If yes, will be the project-related disturbances potentially interact with associated contamination or ASS and are the identified impacts considered to pose a risk to identified receptors? ▪ If no, no further action warranted. ▪ If yes, potential further risk assessment and/or remediation/management may be required.		

DQO	Data Gap 1: Baseline Site Conditions	Data Gap 2: Potential Contamination Risks in Areas of Potential Project Disturbance	Data Gap 3: Potential ASS Risks in Areas of Potential Project Disturbance
6. Specify Limits on Decision Errors	Decision errors related to the study questions are possible, and include: • Sampling errors that occur when the sampling program does not adequately detect the variability of a contaminant from point to point across the site (i.e. the samples collected are not representative of the site conditions). • Measurement errors that occur during sample collection, handling preparation, analysis and data reduction. To minimise the potential for decision errors, the following data quality indicators (DQIs) will be adhered to: precision, accuracy, representativeness, comparability and completeness. DQIs will be assessed at the completion of the investigation to assess for the presence of decision errors. A description of the DQIs are as follows: 1. Precision measures the reproducibility of measurements under a given set of conditions. The precision of the laboratory data and sampling techniques is assessed by calculating the Relative Percent Difference (RPD) of duplicate samples. Precision is also assessed by sampling methodologies being appropriate and complied with. 2. Accuracy measures the bias in a measurement system. The accuracy of the laboratory data that are generated during this project is a measure of the closeness of the analytical results obtained by a method to the 'true' value. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes and analyses against reference standards. Accuracy is also assessed by sampling methodologies being appropriate and complied with. 3. Representativeness expresses the degree which sample data accurately and precisely represent a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples on a representative basis across the site, and by using an adequate number of sample locations to characterise the site to the required accuracy. 4. Comparability expresses the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in techniques used to collect samples, and ensuring analysing laboratories use consistent analysis techniques and reporting methods. 5. Completeness is defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study, including all critical locations sampled. 6. Sensitivity expresses the appropriateness of the chosen laboratory methods, including the limits of reporting, in producing reliable data in relation to the adopted criteria. Further details on how the above DQIs will be assessed are presented in the quality assurance (QA) / quality control (QC) procedures documented in **Section 7.5** of this report. If any of the DQIs are not met, further assessment will be necessary to determine whether the non-conformance will significantly affect the usefulness of the data. Corrective actions may include requesting further information from samplers and/ or analytical laboratories, downgrading of the quality of the data or alternatively, re-collection of the data.		
7. Optimise the Design	The sampling and analysis program is summarised in **Section 7.0** and has been prepared with reference to relevant guidelines and regulations. The sampling and analysis program has been designed to investigate the potential sources of contamination in accordance with the objectives of the project. Utilisation of existing monitoring wells and data has been used to offset the scope of investigation. Should data collected during the investigation indicate that the objectives are not being met, the sampling design may be adjusted, including additional sampling locations to characterise the contamination. Additional works will only be undertaken following consultation with Main Roads and relevant stakeholders. Recognising the project-related objectives, additional investigation may be required to resolve regulatory requirements under the CS Act.		

5.1 Investigation Constraints and Exclusions

The following represent key investigation constraints:

- Restricted access to undertake assessment within overgrown areas of the site, such as along road verges. This is a key constraint with regard to the presence or absence of PACM in surface soils.
- Assessment outside of site boundaries or land that otherwise requires third party permission to access (this is considered a constraint largely due to project timeframes stated above).
- Assessment on roadways or assessment work that otherwise triggers traffic management requirements.

Further investigation restraints that were encountered during the DSI investigation are outlined in **Section 7.6**.

Due to the above constraints and consistent with stated objectives exclusions the completed investigations are not intended to enable favourable reclassification of any portions of the site under the CS Act. It is further recognised that the responsibility for addressing such regulatory requirements lies with the ‘source’ sites.

6.0 Investigation Levels

6.1 Assessment Guidelines

The following documents have been consulted in adoption of assessment criteria for soil and groundwater the site to achieve project objectives.

- *Assessment and Management of Contaminated Sites* (DWER 2021).
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (Australian and New Zealand Governments [ANZG] 2018).
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (Australian and New Zealand Environment and Conservation Council [ANZECC] and Agriculture and Resource Management Council of Australia and New Zealand [ARMCANZ] 2000).
- *Contaminated Sites Ground and Surface Water Chemical Screening Guidelines* (Department of Health [DoH] 2014).
- *National Environment Protection (Assessment of Site Contamination) Measure* (as amended 2013) (NEPC 1999).
- *National Water Quality Management Strategy Australian Drinking Water Guidelines 6* (National Health and Medical Research Council [NHMRC] 2011) Version 3.9 December 2024.
- *Public Consultation on Draft Guidance for PFAS.* (NHMRC 2024)
- *Per-and polyfluoroalkyl substances (PFAS) National Environmental Management Plan (NEMP)* Version 2.0 – January 2020 (Heads of EPA Australia and New Zealand [HEPA] 2020).
- *CRC for Contamination Assessment and Remediation of the Environment Technical Report No.10 Health screening levels for petroleum hydrocarbons in soil and groundwater: Summary* Friebel and Nadebaum 2011).
- *Identification and investigation of acid sulfate soils and acidic landscapes*. (DER 2015a).
- *Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes* (DER 2015b).

6.2 Soil Investigation Levels

Soil ILs were selected with consideration to the potential receptors outlined in the CSM and are summarised in **Table 6-1**.

Table 6-1: Soil Assessment Criteria

Exposure Scenario	Adopted Assessment Criteria	Guideline Source
Human Health	• Health Based Investigation Levels (HIL): ▪ HIL-D (Commercial/Industrial). • Health Based Screening Levels (HSL) for vapour intrusion and direct contact: ▪ HSL-D (Commercial/Industrial). ▪ Intrusive maintenance workers/ direct contact[1].	NEPC (1999) Friebel and Nadebaum (2011) HEPA (2020)
Ecological	• Ecological Screening Levels (ESL): ▪ ESL-D (Commercial/Industrial) coarse soil. • Ecological Investigation Levels (EIL): ▪ EIL-D (Commercial/Industrial) coarse soil[2].	NEPC (1999)
ASS	• Texture-based ASS 'action criteria'.[3]	DER (2015a)

Notes

[1] Guideline not included in the SAQP (Senversa 2024b)
[2] Ambient background concentrations (ABCs) were not determined as part of this investigation and therefore the more conservative EILs have been adopted as tier 1 assessment criteria.
[3] Action criteria of 0.03% %S applied as applicable to likely disturbance volumes greater than 1,000 tonnes and sand being the dominant soil texture encountered.

6.3 Groundwater Investigation Levels

Groundwater ILs are summarised in **Table 6-2**.

Table 6-2: Groundwater Assessment Criteria

Receptor	Criteria	Source
Human Health	• HSL for vapour intrusion (sand): ▪ Commercial/ Industrial (HSL D).	NEPC (1999)
	• Domestic Non-Potable Use Guidelines (NPUG) (including garden produce). ▪ Drinking water guidelines (DWG) x10 to assess against non-potable use (DWGx10)[1]	DWER (2021) DOH (2014) NHRMC (2011)
	• Draft Health Based Drinking Water PFAS Guidelines[1] ▪ Drinking water guidelines x10 to assess against non-potable use (DWGx10).	NHRMC (2024)
Ecological	• Groundwater Investigation Levels (GILs) for freshwaters (GIL-FW): ▪ 95% species protection level (SPL) for non-bio-accumulative CoPCs (GIL-FW95). ▪ 99% SPL for bio-accumulative CoPCs (GIL-FW99).	ANZG (2018) NEPC (1999) HEPA (2020)
	• Short Term Irrigation (STI) Water Guidelines.	ANZECC / ARMCANZ (2000)
	• Default trigger values for physical and chemical stressors[1]: ▪ South-west Australia (Wetlands) (default trigger value (DTV)-SW)	ANZECC / ARMCANZ (2000)
ASS	• Groundwater Indicators of ASS[1] • Minimum trigger/action values for dewatering effluent into sensitive wetlands or waterway[1]	DER (2015b)

Notes

[1] Guideline not included in the SAQP (Senversa 2024b)

It is noted that NHRMC released draft updated PFAS human health guidelines in October 2024, that have not been finalised at the time of submission of this report. The draft guidelines have been included as part of groundwater investigation levels to provide a measure of future proofing given the potentially extended timeline of the project.

7.0 Investigation Scope and Methodology

The following sections detail the scope and methodology completed as part of the DSI. The investigation program was undertaken in general accordance with the SAQP (Senversa 2024b). Deviations from the SAQP are detailed in **Section 7.6**.

The general scope of work undertaken as part of the DSI is summarised below:

- Drilling and installation of two on-site groundwater wells to supplement the existing groundwater well network, as installed by Golder.
  - Re-drilling of one groundwater well, as the existing well was proven to be unserviceable during the investigation.
- Advancement and sampling of 42 soil bores across the site (to an average depth of 2 m bgl)
- Two GMEs, of up to nine, groundwater monitoring well locations.

7.1 Chronology of Site Works

Table 7-1 summarises the chronology of site works completed under the DSI and associated project team members conducting those works.

Table 7-1: Chronology of Site Works

Mobilisation	Task	Completed Scope	Personnel (Company)
Mobilisation 1 14 August 2024	Site Inspection	• Ground truth proposed sample locations for suitability for intrusive works.	Paul Monaco (Senversa) Catherine Lawery (Senversa) John Morrell (Main Roads)
Mobilisation 2 30 September – 1 October 2024 9-10 October 2024	Service and utility clearance	• Clearance of proposed investigation locations by a qualified service locator. • Active and redundant services were identified and mapped for each lot.	Paul Monaco (Senversa) Catherine Lawery (Senversa) Luke Webster (Western Service Locators)
Mobilisation 3 17-25 October 2024	Soil Investigation	• Advancement and sampling of 42 soil bores.	Catherine Lawery (Senversa) Toby Spencer (Senversa) Lewis Tait, Daniel McDowell (Direct Push Probing) Overwatch Traffic Services
Mobilisation 4 18, 20 November 2024	Groundwater Well Installation	• Drilling, installation of two onsite groundwater monitoring wells.	Egan Churchill-Gray (Senversa) Steve Norrie, Marcus Norrie (Ecoprobe) Overwatch Traffic Services
Mobilisation 5 28-29 November 2024	GME	• GME of seven groundwater monitoring wells.	Indiana Daniels (Senversa)
Mobilisation 6 8-9 January 2025	Groundwater Well Installation	• Re-drill of existing groundwater well that was found to be unserviceable during mobilisation. • Repair of existing groundwater well that was found to be unserviceable during mobilisation.	Toby Spencer (Senversa) Steve Norrie, Marcus Norrie (Ecoprobe)
Mobilisation 7 15-16 January 2025	GME	• GME of nine groundwater monitoring wells.	Toby Spencer (Senversa)

7.2 Health, Safety and Traffic Management and Site Access

Prior to the commencement of site works, a site-specific Health, Safety and Environment Management Plan was developed for site works. An Occupational Health and Safety Construction Induction (White Card) was also held by all field staff involved in the site investigations. As per Main Roads and City of Kwinana regulations, traffic management, including a Traffic Management Plan was implemented by Main Roads authorised traffic management provider, Overwatch Traffic Services.

Site access was organised by Paul Monaco (Senversa), Miranda Nikolich (Main Roads) and Daniel McLennan (Overwatch Traffic Services) for the following site owners:

- City of Kwinana.
- Kwinana Motorplex.
- Main Roads Metro Assets.
- Department of Planning, Land and Heritage.
- Alcoa.
- Private landowners.

In addition, works around the DBNGP were authorised by Australian Gas Infrastructure Group.

7.3 Soil Investigation

A total of 42 soil bores were sampled as shown in **Figure 4a** and **Figure 4b**. Soil bore locations were selected with reference to supplied Main Roads preliminary design drawings, although it is noted the plans were only in draft form and therefore subject to change. The works were completed in accordance with the methodology outlined in the SAQP (Senversa 2024b) and summarised in **Table 7-2** below.

Table 7-2: Soil Sampling Methodology

Task	Methodology
Service Clearance	All investigation locations were cleared for services in accordance with Senversa's Underground and Overhead Clearance Protocol by undertaking the following: • Reviewed available service plans from BYDA. Available plans were obtained from relevant sources and provided to the service locator for review prior to mobilisation to site. • Inspected the site and immediate off-site areas for surface evidence or signage indicating underground or overhead utility locations. • Traced known and redundant (where possible) underground utilities using radio detection equipment by a licensed service locator. • An area of approximately 5 m around each location was cleared in the event the location needed to be relocated for utilities not identified through the service location procedures.
Soil Bore Drilling	The following methodology for the advancement of soil bores was implemented: • Soil bores were hand cleared to a depth of 1.5 m bgl prior to mechanical advancement via direct push or solid auger methodology, depending on ground conditions, until bore termination. • Soil profiles were logged using a modified method based on the Unified Soil Classification System, in accordance with Australian Standard (AS) 1726:2017 and the ASC NEPM. Visual and olfactory observations such as material composition, inclusions, moisture, odours, sheen and staining were recorded. Soil lithographical logs are presented in **Appendix B**. • A photographic record of the soil bore arisings (with relevant bore ID) was taken and is presented in **Appendix C**. • Soil samples were collected from each bore location at surface, 0.5 m, 1.0 m and every meter thereafter or change of strata. • Samples were handled with disposable nitrile gloves and collected into laboratory prepared sample jars. For collection of samples for PFAS analysis, samples were collected in jars with lids that do not contain Teflon and quality assurance methodologies (equipment selection, decontamination, restrictions on material types) specific for PFAS sampling were adopted in accordance with the PFAS NEMP 2.0 (HEPA 2020). • Soil samples were screened for VOCs (volatile organic compounds) using a photoionisation detector (PID). Calibration certificates are presented in **Appendix D**. • All samples were immediately placed into a chilled esky (containing ice) for subsequent transportation to ALS Environmental (primary laboratory) and Eurofins ARL (secondary laboratory). • Samples were selected for analysis based upon APEC history, likely pathway of CoPCs, visual/olfactory observation and PID screening. • As there was no evidence of PACM during soil boring, no soil bore samples were submitted for asbestos in soil presence/absence. • All samples were transported to the nominated laboratories under Senversa's CoC procedures and included accompanying chain of custody (CoC) documents and laboratory supplied security seals. Laboratory documentation is provided in **Appendix E**. • Soil bore locations were surveyed using ArcGIS Field Maps (mobile GPS and mapping system) to MGA coordinates ±2 m. • All soil bores were reinstated with excavated drill cuttings following sampling.
Laboratory Analytical Suite	Primary and QC samples collected as part of the soil investigation were submitted to NATA accredited laboratories under CoC documentation for the following analysis. • pH • Total Metals [Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb), Nickel (Ni), Zinc (Zn), Mercury (Hg)] • Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene (BTEXN) • Total Recoverable Hydrocarbons (TRH) • Organochlorine Pesticides (OCPs) • Major Cations & Anions • PFAS – 30 compounds • Nutrients – [Total Nitrogen (TN), Total Phosphorus (TP), Total Kjeldahl Nitrogen (TKN), Nitrite (NO_2), Nitrate (NO_3), Ammonia (NH_3), Nitrogen Oxides (NO_x] Additionally, where soil bores were located within high potential ASS areas, samples were submitted for the following analysis. • pH Field and pH FOX. • Chromium Reducible Sulphur (CRS)[2].

[2] CRS was selected as it provides an effective method to determine inorganic sulfur and is not subject to significant interference from sulfur, either in organic matter or sulfate minerals (DER 2015a).

Task	Methodology
Decontamination	Sampling procedures used to prevent cross contamination included: • Decontamination of re-usable sampling equipment between sampling locations, using a wash and rinse with potable water then dual rinse with deionised water. • Samples were recovered from the top of the solid auger ensuring that none of the soil sample have touched the auger rod. • Use of dedicated disposable nitrile gloves that were replaced between each sample collection and location. • Decontamination procedures in line with guidance, including use of a phosphate free detergent solution. • QAQC procedures specific to this investigation are detailed further in **Section 7.5**, with results confirming the validity of procedures included as **Appendix F.**

7.4 Groundwater Investigation

The specific methodology and investigation techniques adopted for the groundwater sampling outlined in the SAQP (Senversa 2024b) are summarised in **Table 7-3**, below.

Table 7-3: Groundwater Sampling Methodology

Task	Methodology
Service Clearance	All investigation locations were cleared for underground services in accordance with Senversa's Underground and Overhead Clearance Protocol in conjunction with soil sampling locations (described above).
Monitoring Well Installation	The following methodology was applied for the well installations: • Groundwater wells were advanced via sonic methods to the proposed target depth for groundwater monitoring well installation. Geological and environmental conditions encountered at each location were logged, consistent with AS1726-2017. Borehole lithology at each monitoring well location is provided as **Appendix B.** • Once groundwater was intercepted, groundwater monitoring wells were constructed using 50 mm machine slotted uPVC casing 3 m in length (positioned to straddle the water table), washed filter sand and a bentonite clay seal. Wells were backfilled above the bentonite clay seal using drill cuttings. Two wells were finished with a flush ground level gatic cover, one well was fished with a 1 m steel riser. • After the installation, each groundwater monitoring was developed until multiple lines of evidence indicated that appropriate well development has been achieved (i.e., for at least 15 minutes at each well or until water appears to be visually free from sediment, or where five bore values have been purged). • After installation and development, groundwater monitoring wells were left to stabilise for a period of at least one week prior to sampling.
Location Survey	A survey of newly installed groundwater monitoring well locations and levels were completed by a Senversa field scientist via a Differential Global Positioning Systems (DGPS). The levels of the ground surface and the top of the PVC standpipe were measured. The survey information provided in **Table 3a**, attached.

Task	Methodology
Groundwater Monitoring Event	Two GMEs were undertaken in November 2024 and January 2025, following the below procedures: • Groundwater was gauged from top of casing (ToC) prior to sampling. • Groundwater samples were collected via a peristaltic or bladder pump. The groundwater pump intake was placed at 0.5 m below top of standing water level (SWL) or 0.5 m below the top of the well screened interval, if screen was completely submerged. • Purging of groundwater was continued until field measurements of water quality parameters had stabilised across three readings (pH ±0.05, electrical conductivity ±3%, temperature ±10%, dissolved oxygen ±10% and redox potential ±10mV). Field measurements were recorded using a calibrated water quality meter. Calibration certificates are provided in **Appendix D.** • Samples were placed into laboratory prepared containers, preserved for the relevant analyses. Groundwater samples analysed for dissolved metals (where required) were field filtered with a dedicated 0.45 micron (µm) disposable filter. Samples were stored in an esky containing ice prior to and during transit to the laboratory. • All sampling equipment transferred between sample locations was decontaminated between locations using a PFAS-free detergent followed by a rinse in fresh, potable water. • All disposal consumables, tubing, bladders, were disposed of in appropriate off-site waste receptacles upon completion of sampling. • Groundwater samples were submitted to ALS and triplicate samples were submitted to Eurofins ARL for analysis of CoPCs. • All samples were transported to the nominated laboratories under Senversa's CoC procedures and included accompanying CoC documents and laboratory supplied security seals. Laboratory documentation is provided in **Appendix F**. • Groundwater gauging and sampling was undertaken in a manner consistent with Australian Standard AS/NZ 5667.11:998. Gauging and sampling records are included in **Appendix G**.
Laboratory Analytical Suite	Primary and QC samples collected as part of the soil investigation were submitted to NATA accredited laboratories under CoC documentation for the following analysis. • pH, TDS • Dissolved Metals (As, Cd, Cr, Cu, Pb, Ni, Molybdenum (Mo), Zn and Hg) • BTEXN • TRH • OCPs • Major Cations & Anions • PFAS – 30 compounds [(super ultra trace laboratory limit of reporting (LOR)] • Nutrients - NO_3 Additionally, as a result of the ASS risk present at the site, all groundwater samples were additionally analysed for the below extended ASS suite. • Nutrients (TN, TKN, NOx, NH_3, TP and total reactive phosphorus (TRP). • Sulfide • Total metals – [Iron (Fe) and Aluminium (Al)] • Dissolved metals – [Cobalt (Co), Manganese (Mn), Al and Selenium (Se)]
Decontamination	Sampling procedures used to prevent cross contamination included: • Decontamination of re-usable sampling equipment between sampling locations, using a wash and rinse with potable water then dual rinse with deionised water. • Use of dedicated disposable consumables (tubing, bladders, nitrile gloves etc) that were replaced between each sample collection and location. • Decontamination procedures in line with guidance, including the use of phosphate free detergent solution. QAQC procedures specific to this investigation are detailed further in **Section 7.5**, with results confirming the validity of procedures included as **Appendix F**.
Waste Disposal	▪ Excavated soils, situated above the water table, from monitoring well installation was utilised as backfill during well construction. ▪ Excess soil cuttings, material from below the water table and all development water from the monitoring well installation was drummed, labelled and disposed of via a licenced waste removal contractor (Hazrad). ▪ Purge water from GMEs were drummed and labelled and disposed of via a licenced waste removal contractor (Hazrad). ▪ The disposal document is presented in **Appendix H**. • General waste was disposed into off-site appropriate waste receptacles.

7.5 Quality Assurance and Quality Control

The data QAQC procedures adopted by Senversa provide a consistent approach to evaluation of whether the DQOs required by the project have been achieved. The process focusses on the assessment of the useability of the data in terms of accuracy and reliability in forming conclusions on the condition of the element of the environment being investigated.

The QA/QC assessment confirmed that all identified non-compliances were minor in nature and did not have any significant or adverse impacts on the reliability of the dataset. The assessment concluded that the results are reliable, accurate and representative for decision making purposes. The QAQC, data verification and validation procedures and data suitability are summarised in **Appendix F**. Equipment calibration certificates and laboratory certificates are presented in **Appendix D** and **Appendix E** respectively.

7.6 SAQP Deviations

The scope of work was undertaken in general accordance with the SAQP (Senversa 2024b), with the exceptions of the deviations listed in **Table 7-4**.

Table 7-4: SAQP Deviations

Deviation	Description
Change in sample method	Multiple soil bores were advanced by hand auger only, due to ground conditions or the presence of underground services (particularly the DBNGP) preventing drill rig access or operation. In all cases, with the exception of SB035, target depth was achieved and therefore this is not considered a material risk to the investigation.
Soil bore relocation	Approximately 65% of soil bores were relocated from the locations proposed in the SAQP. Soil bores were relocated for one or more of the following reasons. • Unable to gain landowner permission. • Proximately to Anketell and Rockingham Roads did not allow for intrusive works to be conducted safely. • In the vicinity of overhead or underground services (i.e. the DBNGP, high voltage power lines). • Ground topography / existing vegetation preventing safe access by drill rig. • Heritage concerns. • Prevent disturbance to existing site vegetation. The relocation of soil bores to alterative locations has resulted in limitations in the understanding of contamination, specifically where sampling locations could not be completed within APECS. This limitation to the work has been discussed further in **Section 9.4**.
Additional soil bore / monitoring well	Soil bore SB042 was included in the proposed sample location figure of the SAQP (Senversa 2024b), although labelled as SB030, but not in SAQP investigation rationale. This was likely due to an accidental omission from the investigation rationale document. The location was sampled as part of the DSI in order to gain environmental baseline data for the northern section of Abercrombie Road. As the location was not assigned an analytical suite, due the omission from the investigation rationale, SB42 was analysed for the same CoPC suite as the nearest sample location (SB024). Location GBH04 was found to be unserviceable during the November 2024 GME, an out-of-scope replacement well was installed as part of this investigation in order to gain groundwater data associated with APEC 10.
Additional groundwater monitoring event	An additional groundwater monitoring event was conducted in January 2025 with the inclusion of the newly installed GBH04r to further characterise baseline groundwater conditions.
Groundwater analytical suite	Phenols and solvents were included in the groundwater analytical suite for GBH01, during the November 2024 GME, reflecting the potential risks from industrial facilities located to the southwest of the location based upon broader assessment knowledge gained by the project team during the DSI. Dissolved Mo and nitrate were added to the groundwater CoPC suite for both GMEs to characterise the impacted groundwater plume situated around the Kwinana Motorplex. These CoPCs were likely an omission from the initial sampling plan, as presented in the SAQP.

8.0 Results

8.1 General Site Observations

The site was unoccupied at the time of investigation, and general site observations remained unchanged from observations made in the PSI (Senversa 2024a).

8.2 Lithology

Site topography was generally consistent with desktop findings, with topography varying significantly throughout the site. The photograph log provided in **Appendix C** and soil bore and monitoring well logs provided in **Appendix B** illustrate the encountered lithologies and soil profiles at soil bore and monitoring well locations.

Table 8-1: Generalised Lithological Profile

Depth (m bgl)	USCS Code	Generalised lithology
0 – 7	SM/SP	SAND: poorly graded, fine to coarse grained, sub-rounded to sub-angular sand, brown to orange, dry.
0 – 6	SM/SP	Silty SAND: poorly graded, fine to medium grained, sub-rounded to sub-angular sand, brown to orange, dry. Non-plastic fine silt.
2.5 – 27	-	Limestone: fine to coarse, pale brown, low to medium strength, slightly to highly weathered.

8.3 Acid Sulfate Soil Results

Acid sulfate soil analytical results are tabulated in **Table 1a** and **Table 1b** and laboratory analytical reports are presented in **Appendix E**. Soil bore locations are presented in **Figure 4a** and **Figure 4b** with ASS exceedances of the adopted ILs presented in **Figure 5**. A summary of key ASS findings is presented below.

8.3.1 Field Tests

- ASS exceeded the ILs at one surface sample location (SB031_0.0_0.1), located north of the Spectacles wetland) with a pH_{FOX} of 2.6. This low pH is considered likely due to organic matter within topsoil. The soil lithology identified at this location was grey-brown sand.
- The DWER criteria for the pH change between pH_F and pH_{FOX} (> 3 pH units) was exceeded in multiple soil horizons at SB027 (located in the central portion of site and west of the Spectacles Wetlands) and at SB030, SB032, SB033 and SB040 (located in the eastern portion of the site and to the north of the Spectacles Wetlands). These investigation locations correspond to areas mapped as ‘high risk’ of potential ASS presence.
- The DWER criteria for pH_F and pH_{FOX} change was exceeded in discrete horizons at locations, to a maximum depth of 0.35 m bgl at SB029 (located in the central portion of site and west of the Spectacles Wetlands) and SB031, SB035 (located north of the Spectacles Wetland).
- A pH change of more than 3 pH units indicates potential soil acidification but is not considered an IL.

8.3.2 Chromium Reducible Sulfur

Confirmatory CRS analysis conducted on selected soil lithological units did not identify any ASS above the DWER action criteria for coarse soils (sand). The following range in values were reported:

- Peak CRS concentrations were detected at 0.005%S (SB035_0.25-0.35) and 0.007%S (SB040_3.25-3.35).
- Net acidity concentrations were not detected above the laboratory LOR of 0.02%S at any sample location and did not exceed the DER action criteria of 0.03%S for coarse soils.
- Acid neutralising capacity was identified SB027-29 and SB032 (located in the central and eastern portion of the site, respectively) within a silty sand lithology. This indicates the potential of minor natural acid neutralising capacity in the soils.

8.4 Other Soil Results

8.4.1 Field Indicators of Contamination

Fill material comprising sand, was identified at locations SB025 and SB026, located in the central area of site, to a maximum depth of 0.6 m bgl. No other visual or olfactory indicators of contamination were observed during the soil investigation. Soil bore logs are available in **Appendix B**.

PID readings for all soil samples did not indicate concentration of volatiles (all below 0.5 ppm)

8.4.2 Soil Analytical Results

Soil analytical results are tabulated in **Table 2** and laboratory analytical reports are presented in **Appendix E**.

BTEXN, TRH or OCPs were not detected above the LORs at any sample location. Concentrations of all CoPCs were below the adopted ILs[3]. Key soil analytical results have been summarised below.

- Elevated (as compared to the rest of the dataset), but below IL, lead concentrations were detected in surface samples at SB02 and SB08, located along Rockingham Road.
- PFAS compounds remained below the LOR in the majority of samples analysed. Perfluorooctane sulfonic acid (PFOS) was detected at several locations, predominately in the western portion of the site, although at orders of magnitude lower than ILs. Perfluorohexanoic acid (PFHxA) was also detected at one location (SB04_0.0-0.1) at a concentration equal to the LOR (0.0002 mg/kg). There is no IL for PFHxA.

There are no specific ILs for nutrients in soil, however the concentrations provide useful context when considering the groundwater results. Elevated concentrations (as compared to the rest of the dataset) of TN and TP were identified in surface soil samples at SB027 (located in the central portion of the site), SB032 (located to the north of the Spectacles wetlands in the eastern portion of the site) and SB035 (located in the eastern portion of the site, within a farm paddock).

[3] It is noted that ABCs were not determined as part of the investigation, however all soil metal results were below the conservatively adopted EILs (or where no EIL was available for cadmium and mercury, below the LOR). Therefore the absence of ABCs is not considered to impact the interpretation of the results.

8.5 Groundwater Results

8.5.1 Groundwater Depth, Elevation and Flow Direction

Groundwater depth and elevation data is provided in **Table 3a**. The depth to groundwater ranged from 4.917 m bgl (GBH05, January 2025) to 21.28 m bgl (MW02, January 2025). Groundwater elevations ranged from 0.611 m AHD at GBH01 (January 2025), located in the western portion of the site, to 19.403 AHD at GBH08 (January 2025), located in the eastern portion of the site. The groundwater is inferred to flow in a westerly direction, towards Cockburn Sound, as shown in **Figure 7**. There was no notable difference in groundwater elevation between the November 2024 and January 2025 GMEs.

The groundwater elevation data is based on a limited number of wells, which are distributed across the length of the alignment. As such, localised groundwater flows, such as the possible easterly flow component from infiltration ponds at the Kwinana WWTP (or localised gradients associated with Alcoa groundwater contamination recovery bores), are not evident from the data collected as part of the DSI.

8.5.2 Groundwater Field Chemistry

Groundwater field parameters are presented in **Table 3b** and are summarised as follows:

- pH ranged from 5.61 pH units (GBH05) to 7.26 pH units (MW01) indicating slightly acidic to neutral conditions.
  - Groundwater was identified as mildly acidic (< 6 pH units) at wells GBH05 and GBH08, located near the Spectacles Wetland (being a high ASS risk area).
  - Groundwater pH at location MW02 and GBH01 were identified as near neutral (6.94 – 7.09 pH units) and based on pH as an indicator, appears to be unimpacted by the known alkaline groundwater plume from the Kwinana Motorplex complex.
- Electrical conductivity (EC) ranged from 206 µS/cm (GBH06) to 1,561 µS/cm (GBH04), which is indictive of fresh to brackish conditions. Groundwater conditions were brackish in the western and central wells and fresh in the eastern locations.
- Groundwater was largely aerobic across the site with dissolved oxygen (DO) ranging between 0.15 mg/L (GHB08) to 2.91 mg/L (MW02). Anaerobic conditions (DO < 0.5 mg/L) were reported at three locations, GBH01 (0.45 mg/L), GHB05 (0.25 mg/L) and GBH08 (0.15 mg/L).
- Redox values indicated oxidising conditions (>50 mV) across the well network ranging between 127.3 mV (GBH06) to 259.7 mV (GBH01).

8.5.3 Groundwater Analytical Results

Groundwater analytical results are summarised against adopted criteria in **Table 4** and laboratory certificates are provided in **Appendix E**. All groundwater CoPCs were below the adopted ILs except for those presented in **Table 8-2** and **Figure 8**.

Groundwater results are summarised as follows:

- BTEXN were not detected in any well.
- TRH were not detected in any well except for GBH07 (January 2025), in the eastern portion of site, where TRH C16-34 and TRH C34-C40 were detected at concentrations below the ILs. TRH was not detected at this location during the November 2024 GME. All TRH results were below the LOR for all other locations during both GMEs.

- Concentrations of filtered[4] metals (aluminium, cobalt, copper, iron and zinc) exceeded GIL-FW95 and/or NPUG as follows. Concentrations of filtered metals were below the STIs in all samples.
  - Aluminium exceeded the GIL-FW95 (0.055 mg/L) in four samples collected from three locations (GBH05, GBH06 and GHB08), with a maximum concentration of 0.18 mg/L. These wells are located in the eastern portion of the site.
  - Cobalt exceeded the GIL-FW95 (0.0014 mg/L) at GBH04 during the January 2025 GME (0.003 mg/L). This location was not sampled, as it was inoperable, during the November 2024 GME. GBH04 is located in the central portion of the site near the Anketell Road and Abercrombie Road intersection.
  - Copper exceeded the GIL-FW95 (0.0014 mg/L) in one sample (GBH01 – November 2024, 0.002 mg/L). GBH01 is located in the western portion of the site.
  - Iron exceeded the NPUG (0.3 mg/L) in five samples collected from three locations (GBH05, GBH06 and GBH08), with a maximum concentration of 1.69 mg/L at GBH08. These wells are located in the eastern portion of the site.
  - Zinc exceeded the GIL-FW95 (0.008 mg/L) and NPUG (3 mg/L) at GBH06 during the January 2025 GME (4.15 mg/L). This location was not sampled, as it was inoperable, during the November 2024 GME. GBH06 is located in the eastern portion of the site, to the north-east of the Spectacles wetland.
- Concentrations of chloride exceeded the STI at GBH04 only. GBH04 is located in the central portion of the site near the Anketell Road and Abercrombie Road intersection
- Concentrations of sodium exceeded the STI at three sample locations (GBH01, GBH04 and MW02), located in the western and central portions of site.
- Ammonia concentrations were detected above the GIL-FW95 in GBH01 and GBH04 in January 2025. The ammonia concentrations at GBH04 also exceeded the NPUG, which is located in the central portion of the site. This location is down hydraulic gradient of a number of APECs, including the Alcoa refinery, a registered contaminated site for ammonia impacts in groundwater. Ammonia did not exceed the ILs at any other location.
- Nitrate concentrations were detected above the GIL-FW95 in five groundwater monitoring wells, located across the site (GBH01, GBH03, GBH07, MW01 and MW02). The highest nitrate concentrations were recorded at MW01 (8.62 mg/L), which is located in the western portion of the site, down-gradient of an industrial area.
- PFOS concentrations exceeded the GIL-FW99 in all locations across both GMEs, with the exception of the eastern most monitoring well, GHB08. Concentrations of PFOS also exceeded the draft DWGx10 at GBH04 (0.0465 µg/L, January 2025). PFOS concentrations were generally higher in the central and western portions of the site.
- Other PFAS compounds were variously detected across the site, with the exception of GBH08 (November 2024), for both GMEs. PFAS concentrations were generally higher in the central and western portions of the site.

[4] Results for total metals are discussed as part of the ASS indicators (**Section 8.5.5**).

Table 8-2: Groundwater Exceedance Summary (Primary Samples)

Analyte (mg/L unless otherwise stated)	No. Detects / No. Results	Min. Concentration	Max. Concentration	Guideline Exceedances				
				GIL-FW	DWGx10	NPUG	HSL D	STI
Aluminium	7/16	<0.01	0.18	4		-		-
Cobalt	2/16	<0.001	0.003	1				-
Copper	1/16	<0.001	0.002	1		-		-
Iron	7/16	<0.005	1.69			5[1]		-
Zinc	3/16	<0.005	4.15	1		1		-
Ammonia	11/16	<0.01	6.41	1		2[1]		
Nitrate as N	16/16	0.06	8.62	6		-		
Chloride	16/16	16	197			-		1
Sodium	17/16	12	181					6
PFOS (µg/L)	14/16	<0.0002	0.0465	14	1	-		

Notes

GIL-FW – Freshwater Guidelines 95% species protection limit (ANZG 2018) and Groundwater Investigation Levels – Freshwater (99%) for CoPCs that bioaccumulate.
DWGx10 – Draft Health Based Drinking Water PFAS Guidelines x10 to assess non-potable use.
NPUG – Non-potable Use Guidelines.
HSL D– Health Screening Levels Commercial/Industrial for vapour intrusion (Default Screen).
STI – Irrigation Short Term Values

[1] Guideline value is for aesthetic purposes only.

8.5.4 Major Ion Groundwater Chemistry

Figure 8-1 presents a piper plot distribution for groundwater composition at the site based on major ion chemistry in groundwater at each monitoring well. Inter-sample major ion chemistry was varied, with no distinct ion dominant, this is to be expected due to the size of the site and inputs from off-site sources. The major ion chemistry was broadly indicative of the superficial aquifer as published by Davidson (1995). Intra-sample major ion chemistry was largely similar between GMEs, suggesting the same aquifer was sampled at each event.

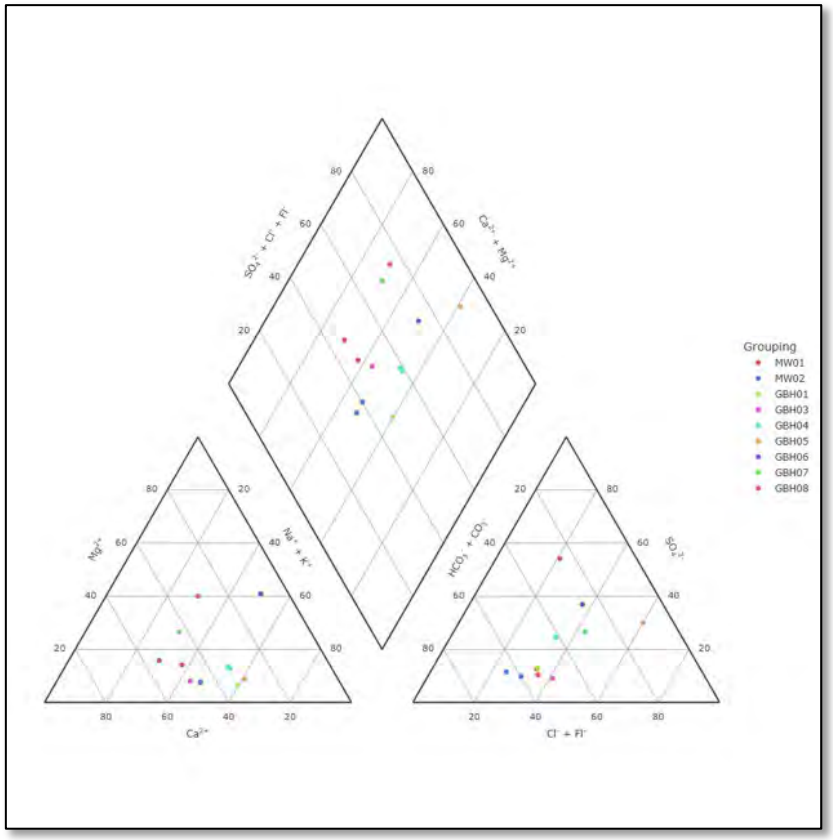


Figure 8-1: Major Ion Chemistry Plots

8.5.5 Groundwater Acidification Indicators

Groundwater acidification indicators are presented in **Table 5** and summarised below.

8.5.5.1 Field Parameters

- pH ranged from 5.61 pH units (GBH05) to 7.26 pH units (MW01) indicating slightly acidic to neutral conditions. Acidic groundwater conditions were more prevalent in the eastern monitoring wells, with pH was below the DTV-SW in GBH05, GBH06 and GBH08.
- Oxidising groundwater conditions, ranging between 127.3 mV (GBH06) to 259.7 mV (GBH01) were prevalent across side.

8.5.5.2 Metals

- Dissolved aluminium concentrations ranged from below the LOR to 0.18 mg/L (GBH07, January 2025), with detections above the LOR only recorded in the central and eastern portion of the site. The concentrations of dissolved aluminium in groundwater did not indicate the presence of ASS[5] (<1 mg/L).
- Total aluminium concentrations ranged from 0.01 mg/L to 8.87 mg/L, with the highest concentrations at GBH06, located in the eastern area of site. The concentrations of total aluminium >0.15 mg/L[6], present in locations in the central and eastern portion of the site, indicate discharge [either directly or indirectly, (such as via drainage network)] from these locations is not suitable for sensitive wetlands or waterways.

[5] Results were not indicative of the oxidation of sulfides.

[6] DER (2015b) Minimum trigger/action levels to be used where dewatering effluent is to be discharged directly, or indirectly, to a sensitive wetland or waterway (Table 10).

- Dissolved iron concentrations ranged from below the LOR to 1.47 mg/L (GBH06, November 2024), with detections above the LOR only recorded in the central and eastern portion of the site.
- Total iron concentrations ranged from below the LOR to 10.2 mg/L, with the highest concentrations detected at GBH07, located in the eastern area of the site. The concentrations of total iron >1mg/L[6], present in locations in the central and eastern portion of the site, indicate discharge [either directly or indirectly, (such as via drainage network)] from these locations is not suitable for sensitive wetlands or waterways.

8.5.5.3 Inorganics

- Concentrations of ammonia ranged from below the LOR to 6.41 mg/L (GBH04, located in the central portion the site) and exceeded the DTV-SW in eight samples collected from seven locations (GBH01, GBH04, GHB06, GBH07, GBH08 and MW01).
- Concentrations NOx ranged from 0.06 mg/L to 8.62 mg/L (MW01, located in the western portion of the site) and exceeded the DTV-SW in all samples, except for GBH06 (January 2025).
- Concentrations of TN ranged from 0.6 mg/L to 9.4 mg/L (MW01, located in the western portion of the site) and exceeded the wetland DTV-SW in all samples, with the exception of GBH05 (November 2024) and GBH06 (January 2025).
- Reactive Phosphorus (as P) concentrations ranged from below the LOR to 0.08 mg/L (GBH01) Concentrations exceeded the DTV-SW in GBH01 and GBH03 (both in November 2024), located in the western portion of the site.
- Concentrations of TP ranged from below the LOR to 0.16 mg/L (GBH03) and exceeded the wetland DTV-SW at GBH01, GBH03 and MW02 in November 2024 and GBH06 in January 2025.

8.5.5.4 Major Ions

- Sulfate and chloride concentrations were broadly similar throughout the site, with the maximum concentrations detected at GBH04, in the central area of site.
- An alkalinity:sulfate ratio was recorded below the DER (2015b) indicator value of <5 at GBH04 – GBH08, all located within the central and eastern portions of the site. These results are potentially indicative of oxidation of sulfidic material.
- A chloride:sulfate ratio was recorded below the DER (2015b) indicator value of <4 at all sample locations, across both GMEs. This indicates that there may be previous sulfide oxidation, however, is not highly reliable in freshwater conditions.

8.5.5.5 Alkalinity

- Total alkalinity was entirely comprised of bicarbonate alkalinity.
- Total alkalinity was recorded orders of magnitude higher in samples located within the western portion of the site (ranging from 285 mg/L to 410 mg/L), compared to locations within the eastern portions of the site (ranging from 7 mg/L to 89 mg/L). The alkalinity in the western portion of the site was indicative of ‘very high alkalinity’ (i.e. a high buffering capacity) where as in the western portion of the site the alkalinity ranged from ‘very low alkalinity’ to ‘high alkalinity’ indicating there may be an inadequate buffering capacity in groundwater[7].
- Total alkalinity concentrations were broadly similar across sample locations during both GMEs.

[7] DER (2015b) Assessment of the buffering capacity of groundwater (Table 5).

9.0 Discussion and Risk Assessment

9.1 Soil

CoPC concentrations were not detected above the ILs at any sample locations. A discussion of the key soil analytical results is provided below.

Elevated (as compared to the rest of the dataset) lead concentrations at SB02 and SB08 may be associated with the nearby road use such as historical emissions from leaded fuel. In any case the reported lead concentrations remain below adopted ILs hence are unlikely to pose an unacceptable risk to human health or the environment via terrestrial pathway.

Elevated (as compared to the rest of the dataset) concentrations of nutrients (TN and TP) in soil, were likely associated with diffuse impacts from surrounding land uses (e.g. remnant grazing, natural habitat, etc.). Whilst there are no specific ILs for nutrients, the identified concentrations are considered unlikely to pose an unacceptable risk to human health or the environment via terrestrial pathway under the expectation that basic hygiene protocols are applied in undertaking earthworks on an industrial site. The key risk for elevated nutrient concentrations in soil is via leaching to groundwater. The presence of nutrients in groundwater, including an assessment of risk, is discussed in **Section 9.2**.

PFAS concentrations in soil were mostly below detection levels, with detectable concentrations of PFOS (and PFHxA at one location) primarily identified in the western part of the site, located within the KIA. These results suggest a specific point sources of PFAS is unlikely to be present and the identified concentration are likely the result of minor impacts from diffuse sources commonly found in industrial areas. The recorded concentrations (maximum PFOS concentration of 0.0006 mg/kg) align with the ambient concentrations that are detected across urban environments (ranging from <0.002 mg/kg to 0.029 mg/kg) (EPA Victoria 2022). Where PFAS concentrations were detected, they were orders of magnitude below the adopted ILs and are unlikely to pose an unacceptable risk to human health or the environment via terrestrial pathway.

Discrete impacts, (i.e. fly-tipping, asbestos fibre cement fragments and redundant infrastructure, etc.) likely remain and have not been assessed as part of this scope and are considered further in **Section 9.4**.

9.2 Groundwater

CoPC concentrations were generally below the ILs in groundwater, aside from select metals (aluminium, cobalt, copper, iron and zinc), PFOS, nutrients (ammonia and nitrate), chloride and sodium.

Based on spatial and temporal distribution, as presented in **Figure 8**, groundwater analytical results are generally considered to be generally representative of baseline/ambient water quality within the Perth region, with the exception of the following:

- Zinc present in GBH04 and ammonia in GHB06, that were detected orders of magnitude above the other sample locations and likely representative of localised discrete source impacts.

Metal concentrations, including exceedances of GIL-FW95 (aluminium, cobalt, copper and zinc) and/or NPUG (iron and zinc) ILs were identified across the groundwater monitoring network. A discussion of the results is as follows:

- The identified concentrations of cobalt (GBH04) and copper (GBH01) above the GIL-FWG95, were isolated to a single location each and only marginally above the LOR and ILs and therefore are not considered to represent a risk to ecological receptors.
- Elevated concentrations of zinc were identified at GBH06 (4.15 mg/L), which is located in the eastern portion of the site, to the north-east of the Spectacles wetland. The source of the elevated zinc at this location is unclear, with no APECs identified in this area. Additionally, nearby soil sampling locations (e.g. SB20, SB21) did not report elevated concentrations of zinc.
- Elevated aluminium and iron concentrations were co-located at wells in the eastern portion of the site, possibly associated with areas mapped as high to moderate risk of ASS, as discussed in **Section 9.3**.

The identified concentration range of PFOS detected in groundwater above the ecological ILs (0.0004 µg/L to 0.0465 µg/L) are considered representative of ambient concentrations, which are common across the industrial/commercial sites in the Perth metropolitan region[8] (DWER 2022). The identified concentration of PFOS at GBH04 (0.0465 µg/L) also exceeded the draft DWGx10 (NHRMC 2024), but were below the current DWGx10. The exceedance of the draft guideline should be considered further only if the guidelines become finalised and endorsed by DWER.

Concentrations of ammonia exceeded the GIL-FW95 at wells located in the western and central portion of the site (GBH01 and GBH04, respectively). The exceedances of the GIL-FWG95 should be considered further as part of any proposed dewatering discharges, as the concentrations may pose a risk to ecological receptors.

Concentrations of ammonia above the NPUG were identified at GBH04, which is located immediately down-gradient of a number of APECs, including the Alcoa refinery, a registered contaminated site for ammonia impacts in groundwater. The NPUG value for ammonia relates to aesthetic considerations associated with corrosion of copper pipes and fittings. Concentrations of ammonia at GBH04 also exceed the odour threshold of 1.5 mg/L (NHMRC 2011). As such the concentrations of ammonia detected in groundwater at GBH04 are unlikely to cause a risk to human health but may pose a nuisance during any proposed abstraction.

Nitrate exceedances of the ecological ILs are likely associated with the nitrate plumes emanating from sites within the KIA or nearby farming areas as detailed in the PSI (Senversa 2024b). High nitrate concentrations are common within the superficial aquifer in urban and horticultural areas (Davidson 1995). These concentrations should be considered further as part of any proposed dewatering discharges, as the concentrations may pose a risk to ecological receptors.

Chloride exceeded the STI at one location (GBH04) and sodium exceeded the STI at three sample locations (GBH01, GBH04 and MW02), located in the western and central portions of site. The concentrations of chloride and sodium were consistent with general water quality within Bassendean Sand, which are typically chloride-sodium rich (Davidson 1995). The presence of chloride and sodium in groundwater may indicate that groundwater is not suitable for irrigation of crops, however are unlikely to pose a risk to human health or ecological receptors.

[8] 20th – 80th percentile range for commercial/industrial sites being 0.004 µg/L to 0.02 µg/L (DWER 2022).

9.3 ASS

Aside from a single (pH_{FOX}) exceedance of the ASS ILs (pH 2.6 at SB031_0.0-0.1), potential ASS was not identified during the soil investigation. Confirmatory CRS analysis conducted on a deeper sample from this same location (0.5- 0.6 m bgl), but from the same geology (Bassendean Sand) did not indicate the presence of ASS. This indicates that the pH_{FOX} within the surface sample at this location likely represents organic acidity rather than ASS (which is common in 'A Horizon' soils).

Several sample locations, predominately north of the Spectacles wetlands, and in a mapped high risk ASS area, exceeded the pH change ILs (pH change > 3 units), indicative of potential ASS. As with DER (2015), soil field pH_F and pH_{FOX} tests are a useful exploratory tool and cannot be used as a substitute for laboratory analysis to determine the presence or absence of ASS. In this regard, confirmatory CRS analysis undertaken across a selection of soil horizons within these locations did not confirm the presence of ASS. A key distinction is of course that the investigation design is tailored towards shallow soils, as most likely to be disturbed during project work. In this respect it is plausible, if not likely that PASS in Bassendean Sands and the Guildford Formation may exist at or below the water table.

With regard to groundwater and evidence of ASS conditions the following observations are made:

- Existing groundwater alkalinity recorded in monitoring wells across the western portion of the site are designated as 'very high alkalinity' (DER 2015b), indicating that the existing buffering capacity is likely adequate to maintain an acceptable pH in the future.
- Concentrations of dissolved aluminium (up to 0.18 mg/L) remained well below the DER (2015b) value of 1 mg/L, which is used as an indicator that groundwater is being affected by, or has already been affected by, the oxidation of sulfides.
- Recorded pH values remained well above the DER (2015b) value of 5, which is used as an indicator that groundwater is being affected by, or has already been affected by, the oxidation of sulfides.
- Peak total titratable acidity ranged from 14 mg/L to 40 mg/L. A concentration of 40 mg/L (when combined with a pH <6 is used as a default treatment effluent trigger for common dewatering scenarios (DER 2015b).
- An alkalinity:sulfate ratio of less than 5 was identified in all locations east of Abercrombie Road indicating a higher potential of acidification or reduced buffering capacity, for groundwater in this area (DER 2015b).

Reflecting the above, dewatered (shallow) groundwater is unlikely to require some management to ensure to maintain groundwater quality unless groundwater is directly discharged to a receiving surface water environment. In the case of the latter, total concentrations may also be relevant together with a range of physical stressors.

9.4 Data Quality Objective Considerations

In assessing whether DQOs defined for the site have or have not been met per **Section 5.0** a range of decision rules are considered. Fundamental is whether the collected data underpinning the assessment is of adequate quality and completeness to avoid a decision error. In this case significant soil or groundwater contamination has not been identified and therefore a potential decision error would be that this outcome is a 'false negative'. In this respect a range of constraints impinged on a robust assessment of site conditions including:

- There was limited access to a number of areas along the alignment per **Section 5.1**, therefore sampling locations have variously not been placed within specific APECs identified as part of the previous works[9].
- Detailed design plans were not available at the time of the investigation. This is particularly relevant to soil characterisation associated with potential project disturbances, construction dewatering and construction supply water locations, abstraction depths and dewatering cone of depression estimates.
- The scope of work did not meet the default ASS investigation density requirements for a linear infrastructure project as defined in DER (2015a). Additional assessment is likely to be warranted to support detailed design and ultimately satisfy any formal regulatory conditions relating to assessment and management of ASS.
- There are a number of land parcels within the project area deemed affected sites under the CS Act. A number of sites require action such as investigation and remediation. There is likely additional and more recent data for these sites than is available via Detailed Summary of Records process (which are often lodged with DWER upon completion of key milestones).

Notwithstanding the above, the works completed have provided:

- Establishment of baseline conditions across a network of soil bores and groundwater monitoring wells that enable project-related disturbances to be assessed.
- Further context as to the likely quantum of contamination and ASS issues that may be encountered during project works and therefore support ongoing project planning and likely environmental management requirements.

[9] Approximately 65% of the proposed sampling locations required relocation due to various access constraints.

10.0 Revised Conceptional Site Model

A preliminary CSM is provided as **Section 4.0**. In line with the stated objectives and project constraints the completed work has not eliminated APECs as potential sources as such and therefore the preliminary CSM remains valid.

The completed work is encouraging in that it has not identified significant soil or groundwater impacts that would pose an unacceptable receptor risks due to project disturbances. Nonetheless, the following CSM uncertainties should be considered in ongoing project planning:

- The soil investigations completed to date have not identified the presence of ASS or significant soil impacts, however given investigation constraints further soil assessment is warranted as additional design information (and site access) becomes available.
- PFAS in soil was identified at concentrations below the ILs but above the laboratory limits of reporting (LOR), particularly in the western portion of site. As a result any soil material surplus to site requirements that is considered a waste may be deemed a Special Waste Type 3 waste in accordance with the DWER (2019) *Landfill Waste Classifications and Waste Definitions (December 2019)*. This categorisation may have disposal implications.
- The presence of asbestos in soil (ASBINS) was not specifically identified during the works completed to date, however due to the size of the site, surface vegetation and various access restrictions a detailed walkover was not completed as part of the works. Asbestos cement is almost certain to be present within the project area, such as from fly tipping, former asbestos cement structures and the like. Therefore some level of ASBINS management should be anticipated during project works (and planned for accordingly).
- Some portions of the site are included within the site classification boundaries for existing sites classified under the CS Act. The existing CS Act classification restrictions variously include land use restrictions, groundwater abstraction restrictions, the implementation of health, safety and environmental management plans prior to disturbing soil and restriction on basement structures. These restrictions should be considered as part of any construction works and implemented appropriately.
- The technical aspects of any specific proposal of groundwater dewatering or abstraction should be reviewed against the existing groundwater characterisation data and associated validity. Main Roads has advised that the FSG (2024) construction water supply and dewatering scenarios are too preliminary and therefore have not been specifically addressed by this DSI. Further, detailed investigations and dewatering assessment and design will be required per FSG (2024).
- Whilst not necessarily a specific contamination issue, FSG (2024) identified that excessive groundwater abstraction could result in saline water intrusion (or upconing) and deterioration in groundwater quality and beneficial use. This is particularly relevant in the western portion of the site, within the highly transmissive Tamala Limestone.
- Other potential risks, commonly associated with construction projects and as identified in the PSI (Senversa 2024b) (i.e. fly-tipping, potential discrete asbestos fibre cement fragments, etc) may exist within the site boundary which will require management as part of the construction works.
- The FSG (2024) report indicates that the proposed construction works will result in approximately 390,000 m^3 of cut and 2,040,000 m^3 of fill, with a total fill requirement of around 1,650,000 m^3. Given the significant fill volumes required for the project, fill material is likely to be obtained from a variety of sources. Importation of appropriate quality fill is likely to form a key aspect to managing potential contamination risks as part of the project.

11.0 Data Gap Status

The works completed were designed to address three data gaps relating to potential contamination and ASS at the site. The data gaps have been reassessed in light of the outcomes and findings of this investigation and have been addressed in the following sections.

11.1 Data Gap 1: Baseline Site Conditions and Data Gap 2: Potential Contamination Risks in Areas of Potential Project Disturbance

Establishment of baseline conditions was required to enable project-related disturbances and associated contamination and ASS management performance to be assessed. Additionally, a number of APECs were identified with regard to potential contamination that may be disturbed by the project. Project specific contamination characterisation was considered warranted to further verify potential contamination risks and appropriate management measures.

With regard to Data Gap 1 the completed work has enabled the establishment of baseline conditions across a network of soil investigation and groundwater investigation locations.

With regard to Data Gap 2, in implementing the DSI there were ultimately a significant number of access constraints, which meant that the DSI was unable to target a number of the specific APECs and/or specific areas project disturbance.

Outcome / Status: Open. Additional assessment is considered warranted to support further project planning as additional design information and site access becomes available. This information will further bolster both Data Gap 1 and 2.

11.2 Data Gap 3: Potential Acid Sulfate Soil Risks in Areas of Potential Project Disturbance

ASS risk mapping indicates moderate to high ASS risks exists within portions of the site that may be disturbed by the project. Therefore project specific ASS characterisation was considered warranted to further verify potential ASS risks and appropriate management measures.

The investigation works completed as part of the DSI, comprising field screening of 102 soil samples collected from 10 locations, did not identify the presence of ASS. Investigation focused on the upper soil profile as most likely to be disturbed by project works.

The inherent buffering capacity of groundwater indicates a low vulnerability to acidification by ASS. Groundwater treatment is unlikely to be required unless direct discharge of effluent to a waterbody (or connecting drain) is to occur.

Outcome / Status: Open. Additional assessment is likely to be warranted to support ongoing project planning and formal regulatory conditions relating to ASS when conducting soil disturbance or dewatering activities.

12.0 Conclusions and Recommendations

12.1 Conclusions

Senversa was engaged to undertake a DSI in relation to the proposed upgrade of the Anketell Road transport corridor. The scope of work broadly included a site inspection, soil sampling at 42 soil bore locations, installation of three groundwater monitoring wells and completion of two GMEs, of up to of nine groundwater monitoring wells. Fieldworks were conducted across several site visits between August 2024 and January 2025.

The investigation works were designed to address critical CSM uncertainties in the context of the proposed Anketell Road upgrade project, with particular reference to the following:

- Establishment of site soil and groundwater baseline conditions.
- Assessment of potential contamination risks in areas of future potential project disturbance.
- Assessment of potential ASS risks in areas of future potential project disturbance.

At the time of the investigation works there were no detailed design plans available, so investigations were based on preliminary design information.

The soil and groundwater investigation works did not indicate the presence of contamination that is likely to pose a risk as part of the project. However, it is noted that due to the limitations to the scope of work (i.e. site access restrictions, lack of detailed design plan), additional assessment is warranted to further verify the findings.

The groundwater results have provided a baseline assessment of conditions prior to any dewatering works. Based on the current groundwater conditions, groundwater would not be suitable for direct discharge to sensitive wetland environments (or indirect via connecting drainage) without prior treatment.

Whilst the investigation has not identified significant soil or groundwater impacts that would pose a risk to the identified receptors, as discussed in **Section 10.0** some environmental risks may present to construction activities which should be considered / may require management, such as potential ASS impacts at depth, detectable PFAS concentrations in soil and CoPC impacts in groundwater.

12.2 Recommendations

Based on the outcomes from this DSI, it is recommended that further investigations be undertaken, once access permits and additional design information is available, as follows:

- Additional assessment is likely to be warranted to support detailed design or formal regulatory conditions relating to ASS when conducting soil disturbance activities. This is particularly true for this DSI were preferred investigation locations needed to be variously moved due to access constraints. ASS investigations be undertaken in accordance with the minimum DWER guidelines.
- Further soil and groundwater investigations should be undertaken within APECs and/or project disturbance areas to assess contamination and baseline conditions. This may include additional lateral or vertical[10] assessment of contamination. Additional groundwater investigations should be augmented towards any areas nominated for construction water supply or construction dewatering areas as this detail becomes available. Furthermore, such investigations should also account for any corresponding cone of depression and target abstraction depth(s).

[10] The soil investigation was typically limited to the top 2 m of soil. If construction works are to be undertaken at deeper lithologies, particularly at the intersection of the groundwater table, further investigations may be required.

- A detailed site walkover to assess for potential ASBIN should be completed. Additionally, it is considered that any future development should consider implementation of an unexpected finds protocol to manage any potential unexpected finds of ACM during construction works.
- Any material for offsite disposal at a waste facility should be characterised in accordance with relevant DWER waste guidelines. Any material proposed for importation should be characterised to ensure that the material is suitable for the proposed development plans.

13.0 Principles and Limitations of Investigation

The following principles are an integral part of site contamination assessment practices and are intended to be referred to when resolving any ambiguity or exercising such discretion as is accorded the user or site assessor.

Area	Principle and Limitation
Elimination of Uncertainty	Some uncertainty is inherent in all site investigations. Furthermore, any sample, either surface or subsurface, taken for chemical testing may or may not be representative of a larger population or area. Professional judgment and interpretation are inherent in the process, and even when exercised in accordance with objective scientific principles, uncertainty is inevitable. Additional assessment beyond that which was reasonably undertaken may reduce the uncertainty.
Failure to Detect	Even when site investigation work is executed competently and in accordance with the appropriate Australian guidance, such as the National Environment Protection (Assessment of Site Contamination) Amendment Measure ('the ASC NEPM'), it must be recognised that certain conditions present especially difficult target analyte detection problems. Such conditions may include, but are not limited to, complex geological settings, unusual or generally poorly understood behaviour and fate characteristics of certain substances, complex, discontinuous, random, or heterogeneous distributions of existing target analytes, physical impediments to investigation imposed by the location of services, structures and other man-made objects, and the inherent limitations of assessment technologies.
Limitations of Information	The effectiveness of any site investigation may be compromised by limitations or defects in the information used to define the objectives and scope of the investigation, including inability to obtain information concerning historic site uses or prior site assessment activities despite the efforts of the user and assessor to obtain such information.
Level of Assessment	Chemical testing methods have inherent uncertainties and limitations. Senversa routinely seeks to require the laboratory to report any potential or actual problems experienced, or non-routine events which may have occurred during the testing, so that such problems can be considered in evaluating the data.
Comparison with Subsequent Inquiry	The investigation herein should not be considered to be an exhaustive assessment of environmental conditions on a property. There is a point at which the effort required to obtain information is outweighed by the time required to obtain that information, and, in the context of private transactions and contractual responsibilities, may become a material detriment to the orderly conduct of business. If the presence of target analytes is confirmed on a property, the extent of further assessment is a function of the degree of confidence required and the degree of uncertainty acceptable in relation to the objectives of the assessment.
Data Useability	The justification and adequacy of the findings of this investigation in light of the findings of a subsequent inquiry should be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made.
Nature of Advice	Investigation data generally only represent the site conditions at the time the data were generated. Therefore, the usability of data collected as part of this investigation may have a finite lifetime depending on the application and use being made of the data. In all respects, a future reader of this report should evaluate whether previously generated data are appropriate for any subsequent use beyond the original purpose for which they were collected, or are otherwise subject to lifetime limits imposed by other laws, regulations or regulatory policies.

14.0 References

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Figures

Figure 1: Site Location Plan

Figure 2a: Known Contaminated Sites

Figure 2b: Known Contaminated Sites

Figure 3a: Areas of Potential Environmental Concern

Figure 3b: Areas of Potential Environmental Concern

Figure 4a: Soil Bore Locations (West)

Figure 4b: Soil Bore Locations (East)

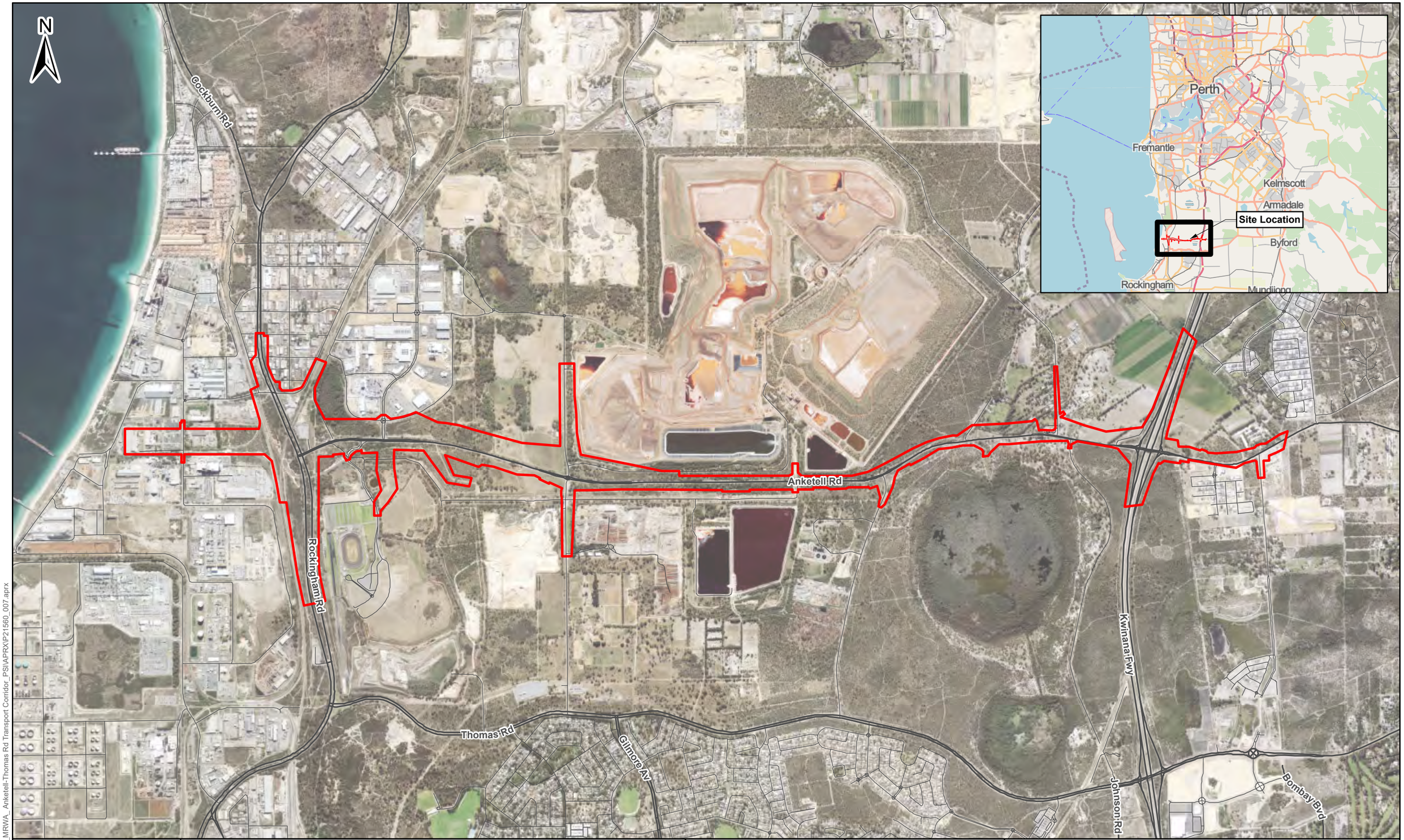
Figure 5: Acid Sulfate Soil Exceedances

Figure 6a: Groundwater Monitoring Well Locations (West)

Figure 6b: Groundwater Monitoring Well Locations (East)

Figure 7: Groundwater Contours – January 2025

Figure 8: Groundwater Exceedances



Legend

- Major Road
- Minor Road
- MRWA Supplied Site Boundary

Aerial Imagery (20/04/2023) © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsen	Scale:	1:25,000 (A3)
File:	P21560_007_F001 Site Location		

0 250 500 1,000 1,500 Metres

Coordinate System: GDA2020 MGA Zone 50

Figure No: 1

Title: Site Location

Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWA_ Anketell-Thomas Rd Transport Corridor_PSI\APRX\P21560_007.aprx

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Legend

- PCIR (Possibly Contaminated - Investigation Required)

Landgate Contaminated Sites Database (DWER-059)

- CRR (Contaminated - Remediation Required)
- CRU (Contaminated - Restricted Use)
- RRU (Remediated For Restricted Use)
- Lot Boundary
- MRWA Supplied Site Boundary

Aerial Imagery (20/04/2023) © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsen	Scale:	1:3,700 (A3)
File:	P21560_007_F002a Known Contaminated Sites		

0 15 30 60 90 120 150 Metres

Coordinate System: GDA2020 MGA Zone 50

Figure No: 2a

Title: Known Contaminated Sites

Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWA_Anketell-Thomas Rd Transport Corridor_PS\APRX\P21560_007.aprx

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N

LOT 50 ON PLAN 10536

SEE FIG 2a

LOT 112 ON DIAGRAM 88143

LOT 501 ON PLAN 72707

LOT 89 ON PLAN 217732

LOT 114 ON PLAN 48295

LOT 2 ON DEPOSITED PLAN 419343

LOT 51 ON PLAN 20582

LOT 114 ON PLAN 48295

LOT 115 ON PLAN 48295

LOT 201 ON PLAN 407762

LOT 435 ON PLAN 220492

LOT 2 ON DEPOSITED PLAN 419343

LOT 2129 ON PLAN 173137

LOT 2 ON DEPOSITED PLAN 419343

LOT 2 ON DEPOSITED PLAN 419343

Legend

- PCIR (Possibly Contaminated - Investigation Required)

Landgate Contaminated Sites Database (DWER-059)

- CRR (Contaminated - Remediation Required)
- CRU (Contaminated - Restricted Use)
- RRU (Remediated For Restricted Use)
- Lot Boundary
- MRWA Supplied Site Boundary

Aerial Imagery (20/04/2023) © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsen	Scale:	1:25,000 (A3)
File:	P21560_007_F002b Known Contaminant Locations		

0 125 250 500 750 1,000 1,250 Metres

Coordinate System: GDA2020 MGA Zone 50

Figure No: 2b

Title: Known Contaminated Sites

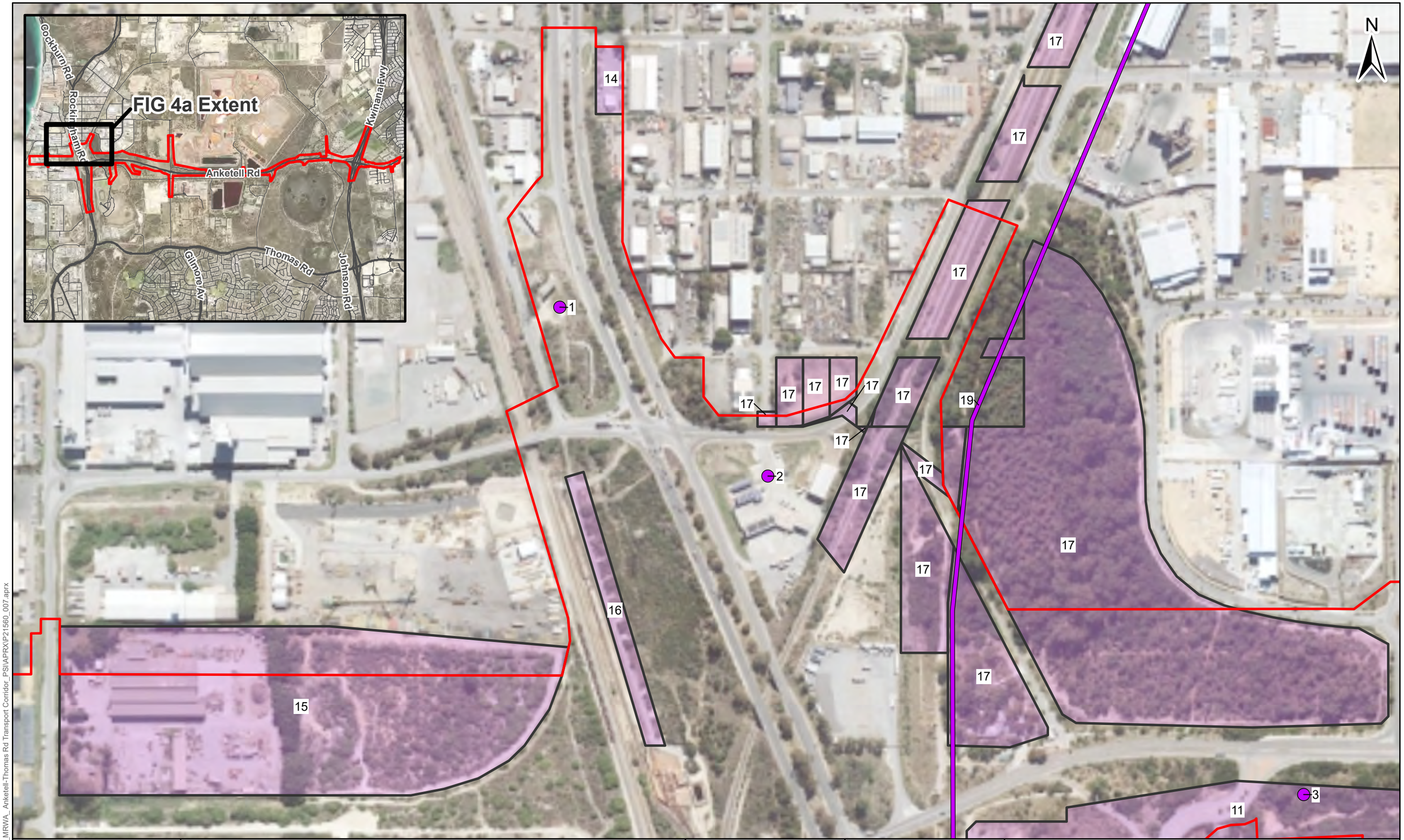
Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWA_Anketell-Thomas Rd Transport Corridor_PSI\APRX\P21560_007.aprx

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Legend

Areas of Potential Environmental Concern (See Table 5.1)

- APEC
- APEC
- APEC
- MRWA Supplied Site Boundary

Aerial Imagery (20/04/2023) © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsen	Scale:	1:3,700 (A3)
File:	P21560_007_F003a APEC (West)		

0 50 100 200 300 Metres

Coordinate System: GDA2020 MGA Zone 50

Figure No: 3a

Title: Areas of Potential Environmental Concern

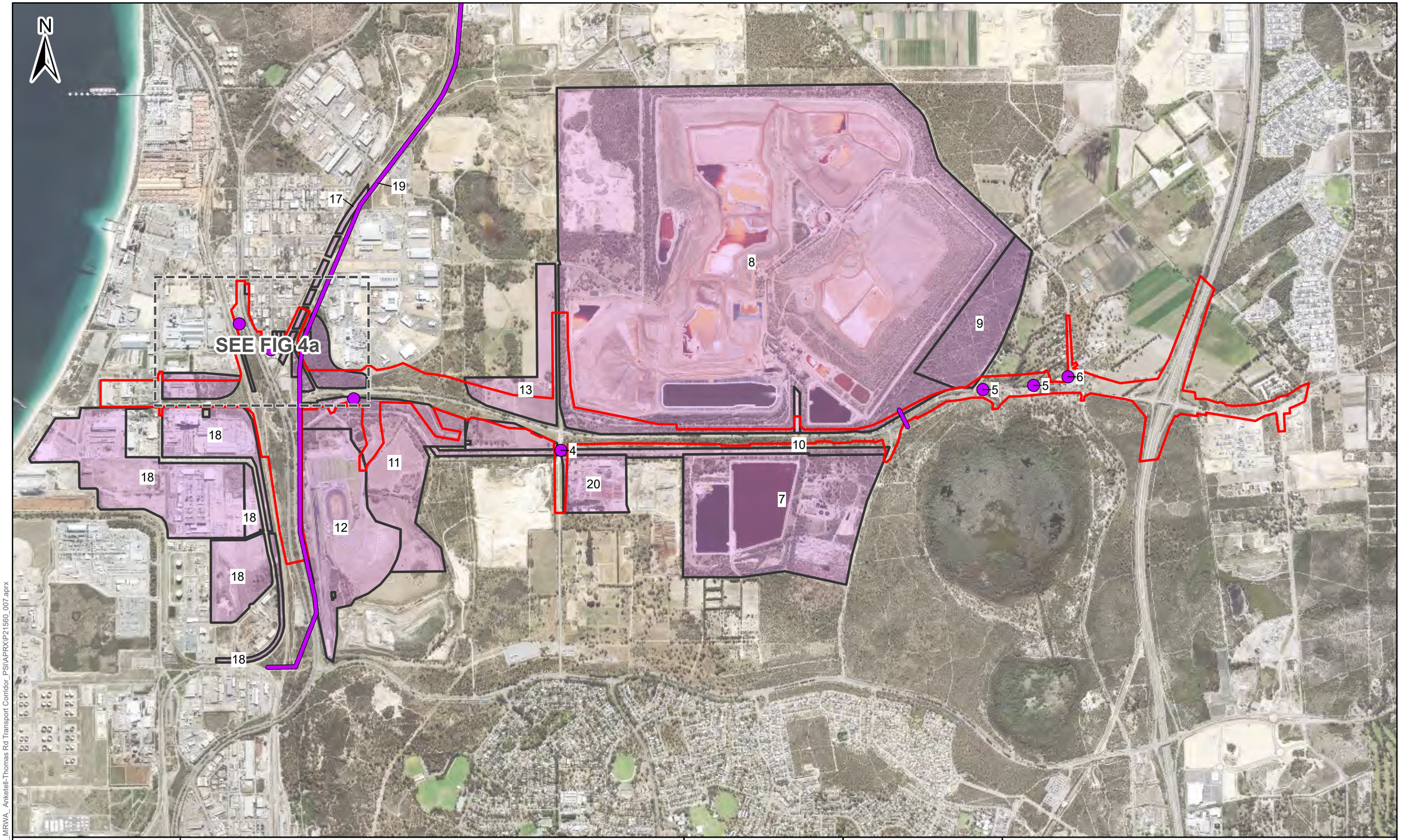
Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWA_Anketell-Thomas Rd Transport Corridor_PS\VAPRX\P21560_007.aprx

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Legend

Areas of Potential Environmental Concern (See Table 5.1)

- APEC
- APEC
- APEC
- MRWA Supplied Site Boundary

Aerial Imagery (20/04/2023) © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsen	Scale:	1:24,000 (A3)
File:	P21560_007_F003b APEC (East)		

0 250 500 1,000 1,500 Metres

Coordinate System: GDA2020 MGA Zone 50

Figure No: 3b

Title: Areas of Potential Environmental Concern

Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

Path: S:\01_Jobs\6.WA_Jobs\P20806_MRWA_ Anketell-Thomas Rd Transport Corridor_PSI\APRX\P21560_007.aprx

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N

SB002 SB003 SB004 SB005 SB006 SB007 SB008 SB009 SB010 SB011 SB012 SB013 SB014 SB015 SB016 SB017 SB018 SB019 SB020 SB021 SB022 SB023 SB024 SB025 SB026 SB027 SB042

1 2 3 4

7 8 11 12 13 14 15 16 17 19 20

A B

Legend

- Soil Bore
- Areas of Potential Environmental Concern
- Bridge
- Compensation Basin
- MRWA Supplied Site Boundary
- Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)
- 1 - High to moderate risk of ASS occurring within 3m of natural soil surface

Aerial Imagery © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsden	Scale:	1:12,000 (A3)
File:	P21560_007_F004a SB Locations APEC		

0 250 500 m

Coordinate System: GDA2020 / MGA zone 50

Figure No: 4a

Title: Soil Bore Locations

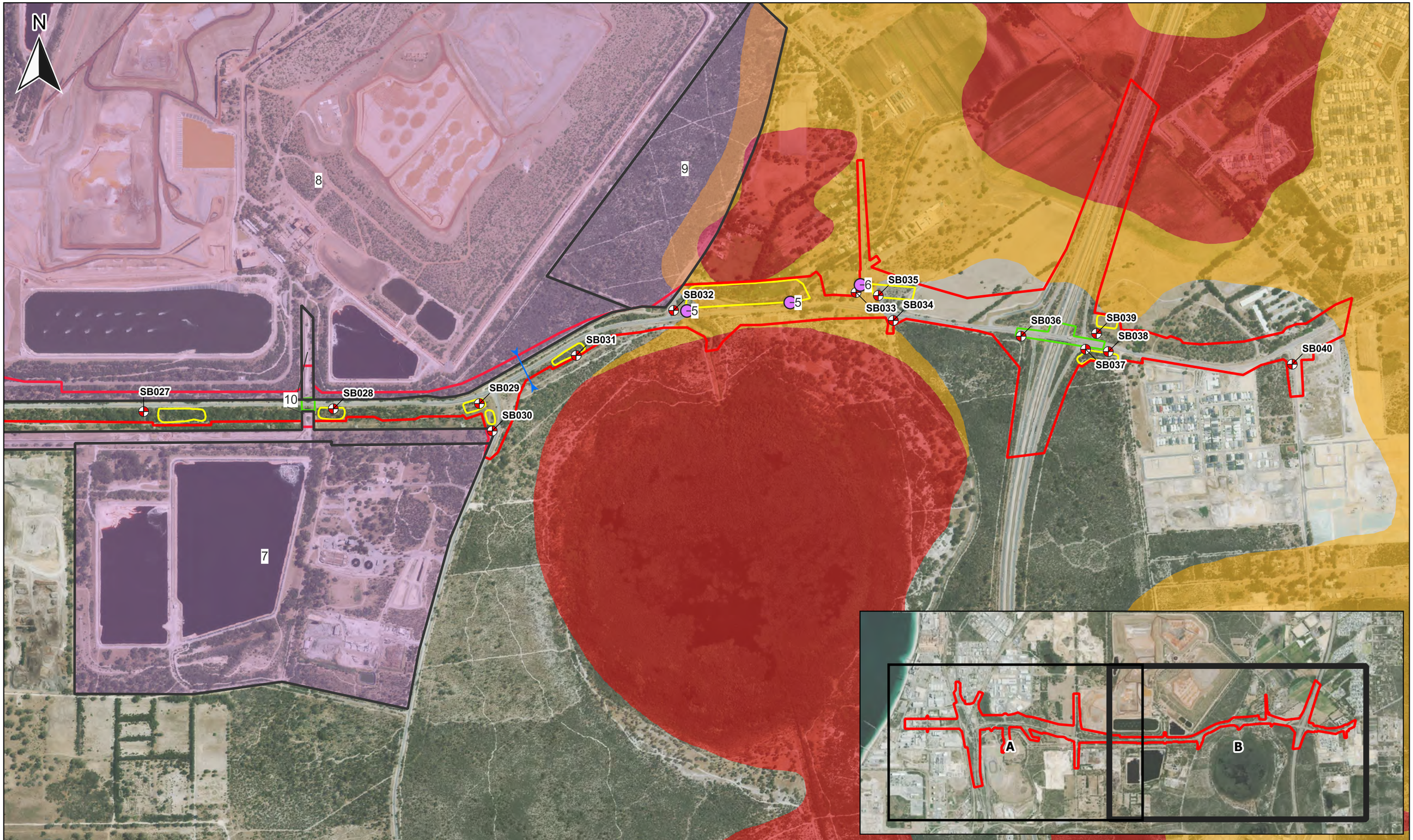
Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

QGIS Project:

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Legend

- Soil Bore
- Culvert
- Areas of Potential Environmental Concern
- Bridge
- Compensation Basin
- MRWA Supplied Site Boundary

Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)

- 1 - High to moderate risk of ASS occurring within 3m of natural soil surface
- 2 – Moderate to low risk of ASS occurring within 3m of natural soil surface but high to moderate risk of ASS beyond 3m of natural soil surface

Aerial Imagery © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsden	Scale:	1:12,000 (A3)
File:	P21560_007_F004b SB Locations APEC		

0 250 500 m

Coordinate System: GDA2020 / MGA zone 50

Figure No: 4b

Title: Soil Bore Locations

Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

QGIS Project:

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Legend

- Soil Bore
- MRWA Supplied Site Boundary

Acid Sulphate Soil Sample ID			
Analyte	Units	Result	Change
ASS investigation guidelines (DER 2015)			

Aerial Imagery © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P.Monaco	Revision:	0
Approved:	J.Lumsden	Scale:	1:12,000 (A3)
File:	P21560_007_F005_Acid Sulphate Soil Exceedances		

0 0.5 1 km

Coordinate System: GDA2020 / MGA zone 50

Figure No: 5

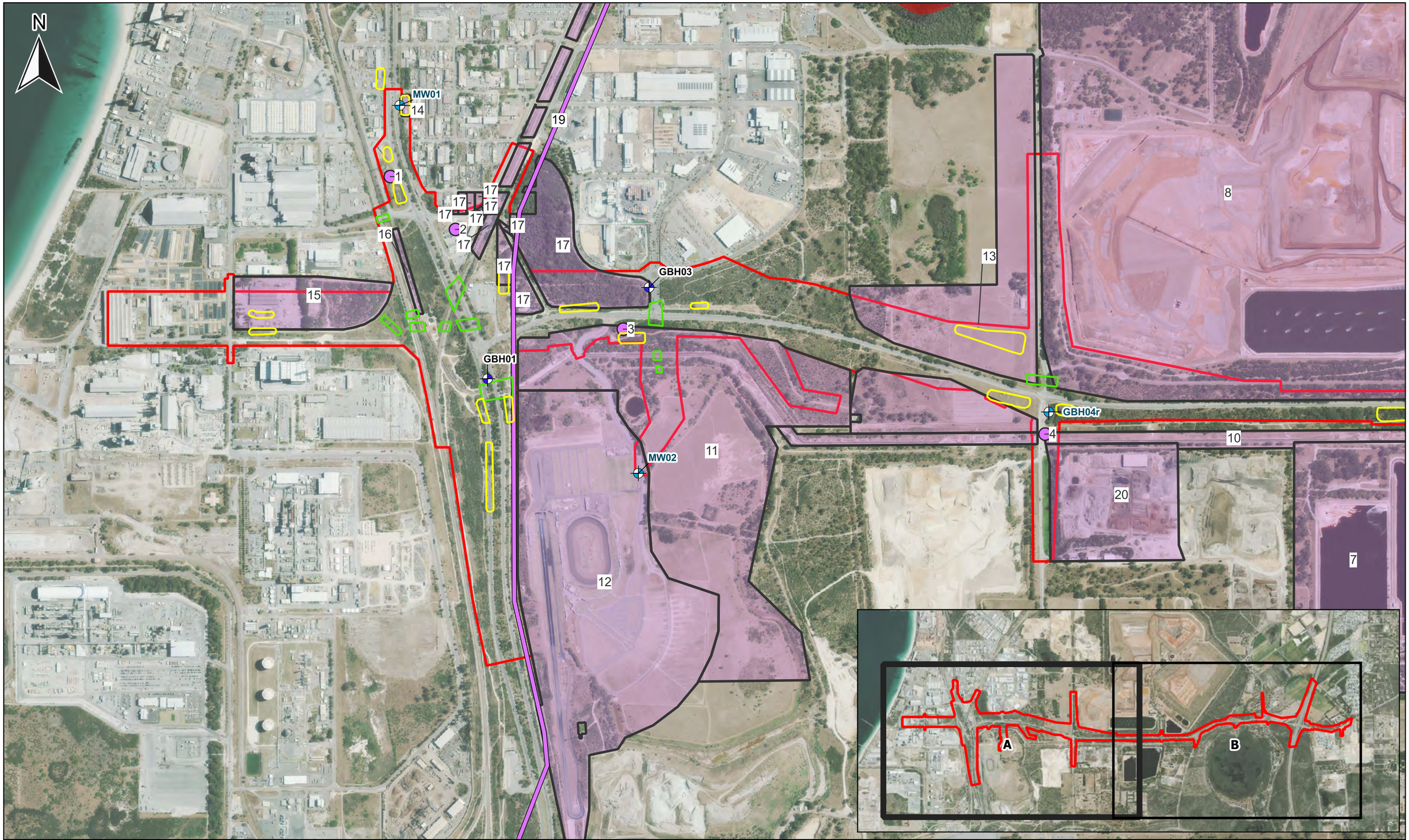
Title: Acid Sulphate Soil Exceedances

Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

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Legend

- Installed Groundwater Monitoring Well
- Existing Groundwater Monitoring Well
- Areas of Potential Environmental Concern
- Bridge
- Compensation Basin
- MRWA Supplied Site Boundary

Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)

- 1 - High to moderate risk of ASS occurring within 3m of natural soil surface

Aerial Imagery © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsden	Scale:	1:12,000 (A3)
File:	P21560_007_F006a GWM Locations		

0 250 500 m

Coordinate System: GDA2020 / MGA zone 50

Figure No: 6a

Title: Groundwater Monitoring Locations

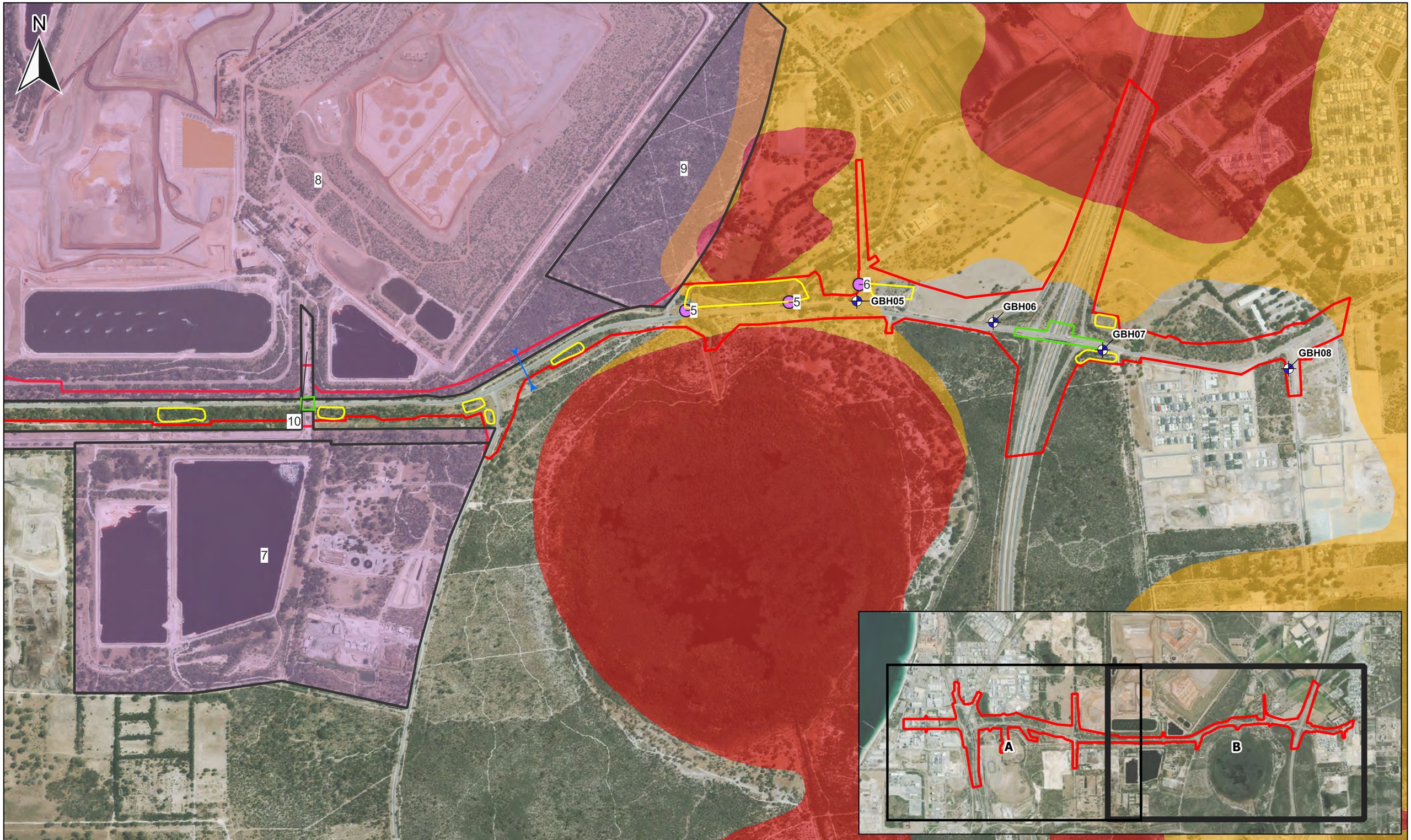
Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

QGIS Project:

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Legend

- Installed Groundwater Monitoring Welll
- Existing Groundwater Monitoring Well
- Areas of Potential Environmental Concern
- Bridge
- Compensation Basin
- MRWA Supplied Site Boundary

Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)

- 1 - High to moderate risk of ASS occurring within 3m of natural soil surface
- 2 – Moderate to low risk of ASS occurring within 3m of natural soil surface but high to moderate risk of ASS beyond 3m of natural soil surface

Aerial Imagery © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsden	Scale:	1:12,000 (A3)
File:	P21560_007_F006b GWM Locations		

0 250 500 m

Coordinate System: GDA2020 / MGA zone 50

Figure No: 6b

Title: Groundwater Monitoring Locations

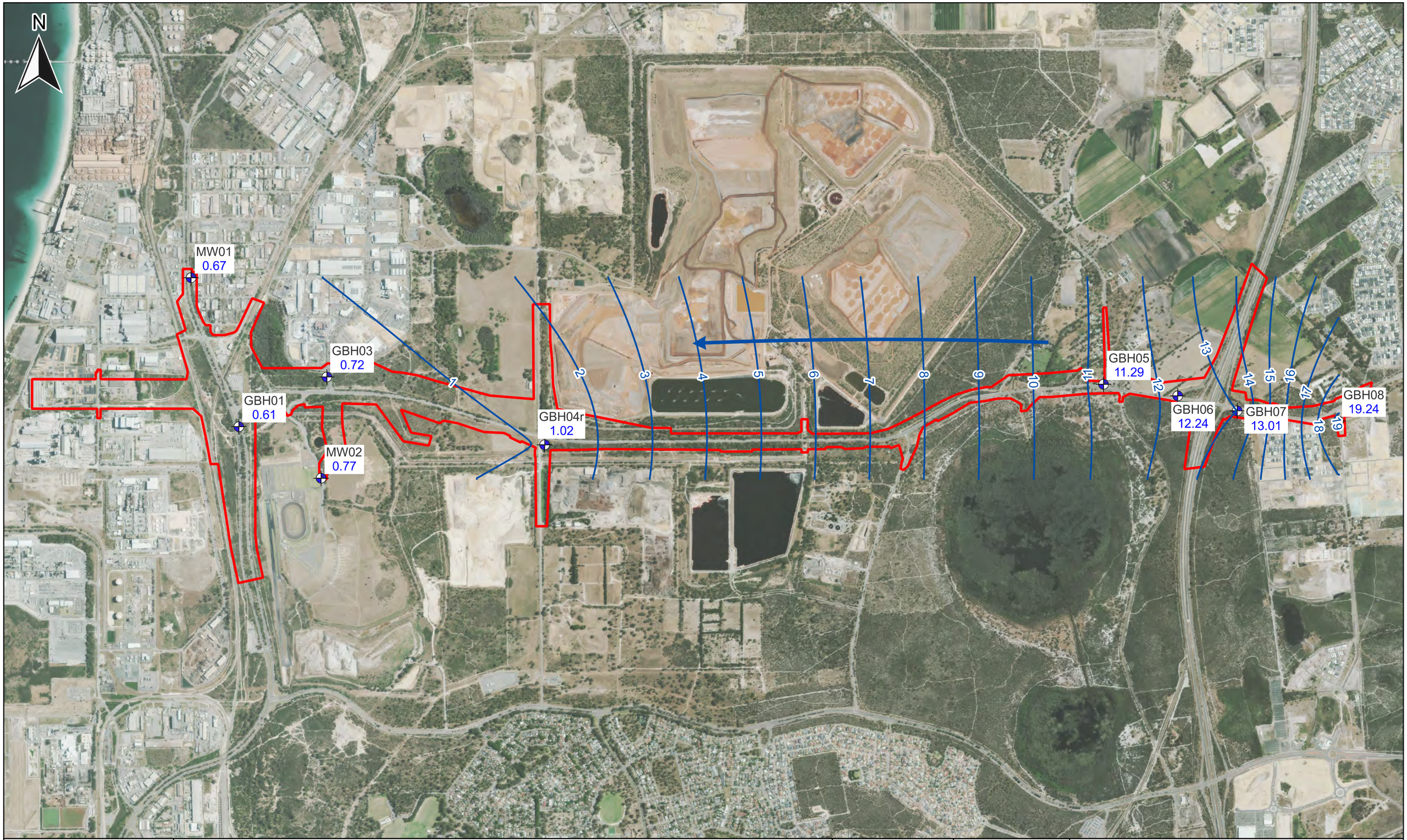
Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

QGIS Project:

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Legend

- Groundwater Monitoring Well
- Groundwater Contours (mAHD)
- Groundwater Flow Direction
- MRWA Supplied Site Boundary

Well ID
Reduced Water Level (m AHD)

Aerial Imagery © Metromap

Created:	J. Currie	Date:	27/02/2025
Reviewed:	P. Monaco	Revision:	0
Approved:	J. Lumsden	Scale:	1:22,000 (A3)
File:	P21560_007_F007 GW Contours		

0 250 500 m

Coordinate System: GDA2020 / MGA zone 50

Figure No: 7

Title: Groundwater Contours

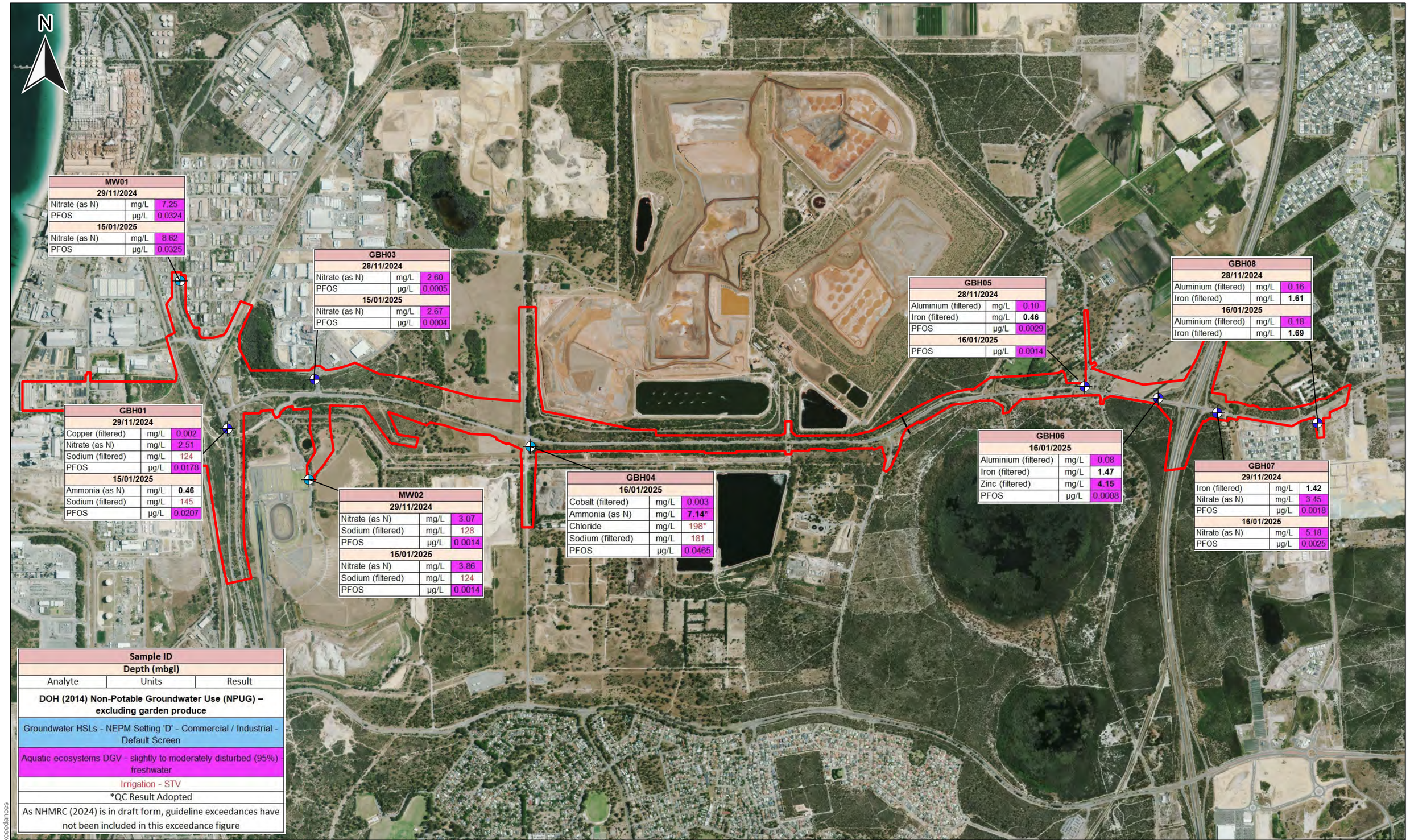
Project: Anketell Road Transport Corridor Detailed Site Investigation

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

QGIS Project:

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Legend

- Installed Groundwater Well
- Existing Groundwater Well
- Site Boundary

Aerial Imagery © Metromap

Created:	J. Currie	Date:	26/02/2025
Reviewed:	P.Monaco	Revision:	0
Approved:	J.Lumsden	Scale:	1:22,000 (A3)
File:	P21560_007_F008 GW Exceedance		

0 0.5 1 km

Coordinate System: GDA2020 / MGA zone 50

Figure No: 8

Title: Groundwater Exceedances

Project: Advice Notification

Location: Anketell Rd, Anketell, WA 6167

Client: Main Roads Western Australia

P21560_006_F002B_Groundwater Exceedances

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Tables

Table 1a: ASS Field pH

Table 1b: ASS CRS Results

Table 2: Soil Analytical Results

Table 3a: GW Well Data

Table 3b: GW Field Data

Table 4: Groundwater Analytical Data

Table 5: GW Acidification

Table 1a - Acid Sulfate Soil Analytical Results (pH Field and pH Fox)
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

					Acid Sulfate Soils - Field			
					pH-F (Field pH test)	pH-FOX (Field pH Peroxide test)	pH change	Reaction Ratings
					pH Units	pH Units	pH units	-
EQL					0.1	0.1	-	1
DER (2015) ASS Investigation Guidelines					<4	<3	>3	>3
Field ID	**Date**	**Depth**	**Lab Report Number**	**Soil Lithology**				
SB027_0.0-0.1	21/10/2024	0 - 0.1	EP2415812	SP SAND: brown	8.7	5.6	3.1	2
SB027_0.5-0.6	21/10/2024	0.5 - 0.6	EP2415812	SAND orange - brown	8.6	5.4	3.2	2
SB027_0.25-0.35	21/10/2024	0.25 - 0.35	EP2415812	SAND orange - brown	8.5	5.5	3	2
SB027_0.75-0.85	21/10/2024	0.75 - 0.85	EP2415812	SAND orange - brown	8.4	5.3	3.1	2
SB027_1.0-1.1	21/10/2024	1 - 1.1	EP2415812	SAND orange - brown	8.6	5.3	3.3	2
SB027_1.5-1.6	21/10/2024	1.5 - 1.6	EP2415812	SAND orange - brown	8.1	5.2	2.9	2
SB027_1.9-2.0	21/10/2024	1.9 - 2	EP2415812	SAND orange - brown	8.1	5.1	3	1
SB027_1.25-1.35	21/10/2024	1.25 - 1.35	EP2415812	SAND orange - brown	8.3	5.1	3.2	2
SB027_1.75-1.85	21/10/2024	1.75 - 1.85	EP2415812	SAND orange - brown	8.4	5.2	3.2	2
SB028_0.0-0.1	22/10/2024	0 - 0.1	EP2415937	silty SAND: pale brown becoming pale orange	6.5	3.8	2.7	2
SB028_0.5-0.6	22/10/2024	0.5 - 0.6	EP2415937	silty SAND: pale brown becoming pale orange	6.5	4.6	1.9	1
SB028_0.25-0.35	22/10/2024	0.25 - 0.35	EP2415937	silty SAND: pale brown becoming pale orange	6.4	4.2	2.2	2
SB028_0.75-0.85	22/10/2024	0.75 - 0.85	EP2415937	silty SAND: pale brown becoming pale orange	6.5	4.5	2	1
SB028_1.0-1.1	22/10/2024	1 - 1.1	EP2415937	silty SAND: pale brown becoming pale orange	6.3	4.7	1.6	1
SB028_1.5-1.6	22/10/2024	1.5 - 1.6	EP2415937	silty SAND: pale brown becoming pale orange	6.8	4.7	2.1	1
SB028_1.9-2.0	22/10/2024	1.9 - 2	EP2415937	silty SAND: pale brown becoming pale orange	6.9	4.6	2.3	1
SB028_1.25-1.35	22/10/2024	1.25 - 1.35	EP2415937	silty SAND: pale brown becoming pale orange	7.1	4.7	2.4	1
SB028_1.75-1.85	22/10/2024	1.75 - 1.85	EP2415937	silty SAND: pale brown becoming pale orange	7.2	4.6	2.6	1
SB029_0.0-0.1	22/10/2024	0 - 0.1	EP2415937	silty SAND: brown becoming pale orange	7	3.8	3.2	2
SB029_0.5-0.6	22/10/2024	0.5 - 0.6	EP2415937	silty SAND: brown becoming pale orange	6.3	4.8	1.5	1
SB029_0.25-0.35	22/10/2024	0.25 - 0.35	EP2415937	silty SAND: brown becoming pale orange	6.2	4.7	1.5	2
SB029_0.75-0.85	22/10/2024	0.75 - 0.85	EP2415937	silty SAND: brown becoming pale orange	6.6	4.9	1.7	1
SB029_1.0-1.1	22/10/2024	1 - 1.1	EP2415937	silty SAND: brown becoming pale orange	6.6	4.8	1.8	1
SB029_1.5-1.6	22/10/2024	1.5 - 1.6	EP2415937	silty SAND: brown becoming pale orange	7.3	5.3	2	1
SB029_1.9-2.0	22/10/2024	1.9 - 2	EP2415937	silty SAND: brown becoming pale orange	6.7	4.7	2	1
SB029_1.25-1.35	22/10/2024	1.25 - 1.35	EP2415937	silty SAND: brown becoming pale orange	6.4	4.7	1.7	1
SB029_1.75-1.85	22/10/2024	1.75 - 1.85	EP2415937	silty SAND: brown becoming pale orange	6.4	4.6	1.8	1
SB030_0.0-0.1	22/10/2024	0 - 0.1	EP2415937	silty SAND: dark brown	7.9	5.8	2.1	2
SB030_0.5-0.6	22/10/2024	0.5 - 0.6	EP2415937	SAND, orange - brown	7.9	5.9	2	2
SB030_0.25-0.35	22/10/2024	0.25 - 0.35	EP2415937	SAND, orange - brown	8	6.1	1.9	2
SB030_0.75-0.85	22/10/2024	0.75 - 0.85	EP2415937	SAND, orange - brown	8.2	5.1	3.1	1
SB030_1.0-1.1	22/10/2024	1 - 1.1	EP2415937	SAND, orange - brown	7.7	4.8	2.9	1
SB030_1.5-1.6	22/10/2024	1.5 - 1.6	EP2415937	SAND, orange - brown	7.8	5	2.8	1
SB030_1.9-2.0	22/10/2024	1.9 - 2	EP2415937	SAND, orange - brown	7.8	4.2	3.6	1
SB030_1.25-1.35	22/10/2024	1.25 - 1.35	EP2415937	SAND, orange - brown	7.3	5.2	2.1	1
SB030_1.75-1.85	22/10/2024	1.75 - 1.85	EP2415937	SAND, orange - brown	7.6	4.5	3.1	1
SB031_0.0-0.1	21/10/2024	0 - 0.1	EP2415812	SAND grey - brown	5.9	2.6	3.3	2
SB031_0.5-0.6	21/10/2024	0.5 - 0.6	EP2415812	SAND : brown becoming orange - brown	5.5	3.4	2.1	1
SB031_0.25-0.35	21/10/2024	0.25 - 0.35	EP2415812	SAND : brown becoming orange - brown	5.2	3	2.2	2
SB031_0.75-0.85	21/10/2024	0.75 - 0.85	EP2415812	SAND : brown becoming orange - brown	5.6	4	1.6	1
SB031_1.0-1.1	21/10/2024	1 - 1.1	EP2415812	SAND : brown becoming orange - brown	5.8	3.9	1.9	1
SB031_1.5-1.6	21/10/2024	1.5 - 1.6	EP2415812	SAND : brown becoming orange - brown	5.7	4.1	1.6	1
SB031_1.9-2.0	21/10/2024	1.9 - 2	EP2415812	SAND : brown becoming orange - brown	5.3	4	1.3	1
SB031_1.25-1.35	21/10/2024	1.25 - 1.35	EP2415812	SAND : brown becoming orange - brown	5.8	3.9	1.9	1
SB031_1.75-1.85	21/10/2024	1.75 - 1.85	EP2415812	SAND : brown becoming orange - brown	5.8	4.1	1.7	1
SB032_0.0-0.1	22/10/2024	0 - 0.1	EP2415937	silty SAND dark brown becoming pale grey	8.2	5.8	2.4	2
SB032_0.5-0.6	22/10/2024	0.5 - 0.6	EP2415937	silty SAND dark brown becoming pale grey	8.5	4.9	3.6	1
SB032_0.25-0.35	22/10/2024	0.25 - 0.35	EP2415937	silty SAND dark brown becoming pale grey	8.2	5.5	2.7	2
SB032_0.75-0.85	22/10/2024	0.75 - 0.85	EP2415937	silty SAND dark brown becoming pale grey	8.3	5	3.3	1
SB032_1.0-1.1	22/10/2024	1 - 1.1	EP2415937	silty SAND dark brown becoming pale grey	8.4	5	3.4	1
SB032_1.5-1.6	22/10/2024	1.5 - 1.6	EP2415937	silty SAND dark brown becoming pale grey	7.7	4.7	3	1
SB032_1.9-2.0	22/10/2024	1.9 - 2	EP2415937	silty SAND dark brown becoming pale grey	7.4	4.6	2.8	1
SB032_1.25-1.35	22/10/2024	1.25 - 1.35	EP2415937	silty SAND dark brown becoming pale grey	8	4.8	3.2	1
SB032_1.75-1.85	22/10/2024	1.75 - 1.85	EP2415937	silty SAND dark brown becoming pale grey	7.9	4.6	3.3	1
SB033_0.0-0.1	22/10/2024	0 - 0.1	EP2415937	silty SAND grey and brown becoming pale grey	8.6	6.1	2.5	2
SB033_0.5-0.6	22/10/2024	0.5 - 0.6	EP2415937	silty SAND grey and brown becoming pale grey	8.6	5.3	3.3	1
SB033_0.25-0.35	22/10/2024	0.25 - 0.35	EP2415937	silty SAND grey and brown becoming pale grey	8.8	6.1	2.7	2
SB033_0.75-0.85	22/10/2024	0.75 - 0.85	EP2415937	silty SAND grey and brown becoming pale grey	8.2	4.8	3.4	1
SB033_1.0-1.1	22/10/2024	1 - 1.1	EP2415937	silty SAND grey and brown becoming pale grey	8.4	4.8	3.6	1
SB033_1.5-1.6	22/10/2024	1.5 - 1.6	EP2415937	silty SAND grey and brown becoming pale grey	7.8	4.6	3.2	1
SB033_1.9-2.0	22/10/2024	1.9 - 2	EP2415937	silty SAND grey and brown becoming pale grey	7.4	4.5	2.9	1
SB033_1.25-1.35	22/10/2024	1.25 - 1.35	EP2415937	silty SAND grey and brown becoming pale grey	8.1	4.6	3.5	1
SB033_1.75-1.85	22/10/2024	1.75 - 1.85	EP2415937	silty SAND grey and brown becoming pale grey	7.4	4.5	2.9	1
SB034_0.0-0.1	21/10/2024	0 - 0.1	EP2415812	SP SAND: brown	7.2	4.7	2.5	1
SB034_0.5-0.6	21/10/2024	0.5 - 0.6	EP2415812	SAND, grey brown becoming brown	7.3	5	2.3	1
SB034_0.25-0.35	21/10/2024	0.25 - 0.35	EP2415812	SAND, grey brown becoming brown	7.6	5.1	2.5	1
SB034_0.75-0.85	21/10/2024	0.75 - 0.85	EP2415812	SAND, grey brown becoming brown	7.5	5.2	2.3	1
SB034_1.0-1.1	21/10/2024	1 - 1.1	EP2415812	SAND, grey brown becoming brown	7.2	5.2	2	1
SB034_1.5-1.6	21/10/2024	1.5 - 1.6	EP2415812	SAND, grey brown becoming brown	7.6	5.4	2.2	1
SB034_1.9-2.0	21/10/2024	1.9 - 2	EP2415812	SAND, grey brown becoming brown	7.2	5.2	2	1
SB034_1.25-1.35	21/10/2024	1.25 - 1.35	EP2415812	SAND, grey brown becoming brown	7.4	5.3	2.1	1
SB034_1.75-1.85	21/10/2024	1.75 - 1.85	EP2415812	SAND, grey brown becoming brown	7	5.2	1.8	1
SB035_0.0-0.1	22/10/2024	0 - 0.1	EP2415937	silty SAND	7	4	3	2
SB035_0.5-0.6	22/10/2024	0.5 - 0.6	EP2415937	silty SAND	6.2	3.4	2.8	1
SB035_0.25-0.35	22/10/2024	0.25 - 0.35	EP2415937	silty SAND	6.8	3.7	3.1	1
SB035_0.75-0.85	22/10/2024	0.75 - 0.85	EP2415937	silty SAND	6.2	3.5	2.7	1
SB035_1.0-1.1	22/10/2024	1 - 1.1	EP2415937	silty SAND	6.3	3.6	2.7	1
SB035_1.5-1.6	22/10/2024	1.5 - 1.6	EP2415937	silty SAND	6.1	4.1	2	1
SB035_1.9-2.0	22/10/2024	1.9 - 2	EP2415937	silty SAND	6	3.6	2.4	1
SB035_1.25-1.35	22/10/2024	1.25 - 1.35	EP2415937	silty SAND	5.8	3.7	2.1	1
SB035_1.75-1.85	22/10/2024	1.75 - 1.85	EP2415937	silty SAND	7.2	4.2	3	1
SB040_0.0-0.1	22/10/2024	0 - 0.1	EP2415937	SAND, brown becoming pale orange	8.6	6.4	2.2	2
SB040_0.5-0.6	22/10/2024	0.5 - 0.6	EP2415937	SAND, brown becoming pale orange	8.8	5.8	3	1
SB040_0.25-0.35	22/10/2024	0.25 - 0.35	EP2415937	SAND, brown becoming pale orange	8.9	6.2	2.7	1
SB040_0.75-0.85	22/10/2024	0.75 - 0.85	EP2415937	SAND, brown becoming pale orange	8.9	5.9	3	1
SB040_1.0-1.1	22/10/2024	1 - 1.1	EP2415937	SAND, brown becoming pale orange	8.6	5.4	3.2	1
SB040_1.5-1.6	22/10/2024	1.5 - 1.6	EP2415937	SAND, brown becoming pale orange	9	6.3	2.7	1
SB040_1.25-1.35	22/10/2024	1.25 - 1.35	EP2415937	SAND, brown becoming pale orange	8.9	5.9	3	1
SB040_1.75-1.85	22/10/2024	1.75 - 1.85	EP2415937	SAND, brown becoming pale orange	8.9	6.6	2.3	2
SB040_2.0-2.1	22/10/2024	2 - 2.1	EP2415937	SAND, brown becoming pale orange	8.4	5.4	3	1
SB040_2.5-2.6	22/10/2024	2.5 - 2.6	EP2415937	SAND, brown becoming pale orange	8.5	5.5	3	1
SB040_2.25-2.35	22/10/2024	2.25 - 2.35	EP2415937	SAND, brown becoming pale orange	8.3	5.3	3	1
SB040_2.75-2.85	22/10/2024	2.75 - 2.85	EP2415937	SAND, brown becoming pale orange	8.4	5.2	3.2	1
SB040_3.0-3.1	22/10/2024	3 - 3.1	EP2415937	SAND, brown becoming pale orange	9	5.7	3.3	1
SB040_3.5-3.6	22/10/2024	3.5 - 3.6	EP2415937	SAND, brown becoming pale orange	8	5.1	2.9	1
SB040_3.25-3.35	22/10/2024	3.25 - 3.35	EP2415937	SAND, brown becoming pale orange	8.3	5.1	3.2	1
SB040_3.75-3.85	22/10/2024	3.75 - 3.85	EP2415937	SAND, brown becoming pale orange	8.8	5.6	3.2	1
SB040_4.0-4.1	22/10/2024	4 - 4.1	EP2415937	SAND, brown becoming pale orange	7.8	5.2	2.6	1
SB040_4.5-4.6	22/10/2024	4.5 - 4.6	EP2415937	SAND, brown becoming pale orange	7.4	5	2.4	1
SB040_4.9-5.0	22/10/2024	4.9 - 5	EP2415937	SAND, brown becoming pale orange	7.8	5	2.8	1
SB040_4.25-4.35	22/10/2024	4.25 - 4.35	EP2415937	SAND, brown becoming pale orange	7.7	5.2	2.5	1
SB040_4.75-4.85	22/10/2024	4.75 - 4.85	EP2415937	SAND, brown becoming pale orange	8.3	5.1	3.2	1

Table 1b - Acid Sulfate Soil Analytical Results (CRS)
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

				Acid Sulfate Soils					Acid Sulfate Soils- Accounting									
				pH (KCl)	Titratable Actual Acidity	Sulfidic - Titratable Actual Acidity	Chromium Reducible Sulfur (Scr)	a-Chromium Reducible Sulfur (Scr)	ANC Fineness Factor	Acid Neutralising Capacity	Acid Neutralising Capacity (ANCBT)	Net Acidity (acidity units)	Sulfidic - Acid Neutralising Capacity	Sulfidic - Net Acidity	a-Net Acidity without ANCE	s-Net Acidity without ANCE	Liming rate without ANCE	Liming Rate
				pH Units	mole H+/t	%S	%S	mole H+/t	-	%CaCO3	mole H+/t	mole H+/t	%S	%S	mole H+/t	%S	kg CaCO3/t	kg CaCO3/t
EQL				0.1	2	0.02	0.005	10	0.5	0.01	10	10	0.01	0.02	10	0.02	1	1
DER (2015) ASS Investigation Guidelines												18[#1]		0.03[#1]				
Field ID	**Date**	**Depth**	**Lab Report Number**															
SB027_1.0-1.1	22/10/2024	1 - 1.1	EP2417221	7.7	<2	<0.02	<0.005	<10	1.5	0.15	30	<10	0.05	<0.02	<10	<0.02	<1	<1
SB028_0.25-0.35	22/10/2024	0.25 - 0.35	EP2417221	6.6	<2	<0.02	<0.005	<10	1.5	<0.01	<10	<10	<0.01	<0.02	<10	<0.02	<1	<1
SB029_0.0-0.1	22/10/2024	0 - 0.1	EP2417221	7.5	<2	<0.02	<0.005	<10	1.5	0.28	55	<10	0.09	<0.02	<10	<0.02	<1	<1
SB029_1.9-2.0	22/10/2024	1.9 - 2	EP2417221	6.5	<2	<0.02	<0.005	<10	1.5	-	-	<10	-	<0.02	<10	<0.02	<1	<1
SB031_0.5-0.6	21/10/2024	0.5 - 0.6	EP2417221	5.7	<2	<0.02	<0.005	<10	1.5	-	-	<10	-	<0.02	<10	<0.02	<1	<1
SB032_0.5-0.6	22/10/2024	0.5 - 0.6	EP2417221	7.1	<2	<0.02	<0.005	<10	1.5	0.08	15	<10	0.02	<0.02	<10	<0.02	<1	<1
SB033_1.0-1.1	22/10/2024	1 - 1.1	EP2417221	6.2	<2	<0.02	<0.005	<10	1.5	-	-	<10	-	<0.02	<10	<0.02	<1	<1
SB034_1.9-2.0	21/10/2024	1.9 - 2	EP2417221	6	<2	<0.02	<0.005	<10	1.5	-	-	<10	-	<0.02	<10	<0.02	<1	<1
SB035_0.25-0.35	22/10/2024	0.25 - 0.35	EP2417221	6	<2	<0.02	0.005	<10	1.5	-	-	<10	-	<0.02	<10	<0.02	<1	<1
SB040_3.25-3.35	22/10/2024	3.25 - 3.35	EP2417221	6.3	<2	<0.02	0.007	<10	1.5	-	-	<10	-	<0.02	<10	<0.02	<1	<1

Comments
#1 The calculated Net Acidity should only include the ANC, where ANC has been corroborated by other data (e.g. slab iincubatioin data). Otherwise Net Acidity = Potential Sulfidic Acidity + Actual Acidity + Retained Acidity.

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

							Physical Parameters	Metals								Inorganics								Major Ions						
							pH (Lab)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Total Oxidised Nitrogen (as N)	Total Kjeldahl Nitrogen	Total Nitrogen (as N)	Phosphorus (as P)	Calcium (filtered)	Chloride	Magnesium (filtered)	Potassium (filtered)	Sulfate (as SO4) (filtered)	Sodium (filtered)
							pH Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL							0.1	5	1	2	5	5	0.1	2	5	20	0.1	0.1	0.1	20	20	2	10	10	10	10	10	10
CRC CARE Direct Contact HSL-D Commercial / Industrial																												
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								3,000[#6]	900	3,600[#7]	240,000	1,500[#8]	730[#9]	6,000	400,000													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																												
NEPM 2013 EILs for Commercial / Industrial								160[#1]		320[#2]	95[#3]	1,830[#4]		60[#3]	150[#3]													
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																												
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)																												
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**																							
SB001/MW01_0.0-0.05	21/11/2024	Soil		Normal	EP2417725		8.9	<5	<1	4	<5	10	<0.1	3	13	-	-	-	-	-	-	-	-	-	-	-	-	-
SB002_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682		8.6	5	<1	16	10	57	<0.1	6	40	-	-	-	-	-	-	-	-	-	-	-	-	-
SB002_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682		9.0	<5	<1	19	<5	6	<0.1	4	<5	-	-	-	-	-	-	-	-	-	-	-	-	-
SB003_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925		8.5	<5	<1	10	<5	<5	<0.1	<2	5	-	-	-	-	-	-	-	-	-	-	-	-	-
SB003_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925		9.2	<5	<1	10	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	-	-	-	-	-	-
SB004_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925		8.7	<5	<1	10	5	9	<0.1	4	27	-	-	-	-	-	-	-	-	-	-	-	-	-
SB004_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925		8.8	<5	<1	9	<5	6	<0.1	<2	17	-	-	-	-	-	-	-	-	-	-	-	-	-
SB005_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925		8.9	6	<1	11	<5	<5	<0.1	<2	9	-	-	-	-	-	-	-	-	-	-	-	-	-
SB005_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925		9.4	6	<1	9	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	-	-	-	-	-	-
SB006_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682		9.0	<5	<1	9	5	29	<0.1	6	15	-	-	-	-	-	-	-	100	<10	<10	<10	<10	<10
SB006_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682		9.3	<5	<1	9	5	18	<0.1	6	13	-	-	-	-	-	-	-	100	<10	<10	<10	<10	<10
SB007_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682		8.6	<5	<1	10	<5	17	<0.1	4	7	-	-	-	-	-	-	-	120	<10	<10	<10	<10	<10
SB007_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682		9.2	<5	<1	12	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	290	<10	<10	<10	20	<10
SB008_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682		8.6	<5	<1	15	26	58	<0.1	25	54	-	-	-	-	-	-	-	140	<10	<10	<10	<10	<10
SB008_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682		9.0	<5	<1	13	<5	6	<0.1	4	6	-	-	-	-	-	-	-	190	<10	<10	<10	<10	<10
SB009_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682		9.0	<5	<1	9	<5	13	<0.1	3	6	-	-	-	-	-	-	-	40	<10	<10	<10	<10	<10
SB009_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682		8.9	<5	<1	9	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	50	<10	<10	<10	<10	<10
SB010_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807		9.0	6	<1	12	<5	<5	<0.1	3	7	-	-	-	-	-	-	-	40	<10	<10	<10	<10	<10
SB010_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807		9.0	7	<1	14	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	40	<10	<10	<10	<10	<10
SB011_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807		7.9	6	<1	11	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
SB011_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807		7.8	7	<1	12	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
SB012_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903		7.2	7	<1	8	<5	<5	<0.1	2	<5	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	10
SB012_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903		7.3	10	<1	10	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
SB013_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903		9.2	5	<1	10	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	40	<10	<10	<10	<10	<10
SB013_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903		9.0	6	<1	10	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	40	<10	<10	<10	<10	<10
SB014_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807		8.8	<5	<1	19	<5	<5	<0.1	3	8	-	-	-	-	-	-	-	70	<10	<10	<10	<10	<10
SB014_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807		8.9	6	<1	21	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	60	<10	<10	<10	<10	<10
SB015_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925		9.0	<5	<1	13	<5	<5	<0.1	3	<5	-	-	-	-	-	-	-	-	-	-	-	-	-
SB015_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925		9.0	<5	<1	14	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	-	-	-	-	-	-
SB016_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903		8.8	<5	<1	13	<5	<5	<0.1	4	<5	-	-	-	-	-	-	-	60	<10	<10	<10	<10	10
SB016_3.0-3.1	23/10/2024	Soil	3 - 3.1	Normal	EP2415903		9.4	6	<1	17	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	40	<10	<10	<10	<10	<10
SB017_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903		8.6	6	<1	38	<5	<5	<0.1	3	<5	-	-	-	-	-	-	-	60	<10	<10	<10	<10	10
SB017_2.0-2.1	23/10/2024	Soil	2 - 2.1	Normal	EP2415903		9.4	<5	<1	14	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	40	<10	<10	<10	<10	<10
SB018_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957		-	6	<1	27	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
SB018_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957		-	8	<1	33	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
SB019_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682		8.5	7	<1	18	12	19	<0.1	6	136	-	-	-	-	-	-	-	80	<10	<10	30	<10	10
SB019_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682		8.7	6	<1	19	<5	11	<0.1	<2	10	-	-	-	-	-	-	-	60	<10	<10	20	<10	<10
SB020_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682		8.7	6	<1	41	<5	<5	<0.1	2	<5	-	-	-	-	-	-	-	70	20	<10	<10	<10	20
SB020_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682		8.7	10	<1	59	<5	<5	<0.1	2	<5	-	-	-	-	-	-	-	80	<10	<10	<10	<10	10

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

					Physical Parameters	Metals								Inorganics								Major Ions					
					pH (Lab)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Total Oxidised Nitrogen (as N)	Total Kjeldahl Nitrogen	Total Nitrogen (as N)	Phosphorus (as P)	Calcium (filtered)	Chloride	Magnesium (filtered)	Potassium (filtered)	Sulfate (as SO4) (filtered)	Sodium (filtered)
					pH Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.1	5	1	2	5	5	0.1	2	5	20	0.1	0.1	0.1	20	20	2	10	10	10	10	10	10
CRC CARE Direct Contact HSL-D Commercial / Industrial																										
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						3,000[#6]	900	3,600[#7]	240,000	1,500[#8]	730[#9]	6,000	400,000													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																										
NEPM 2013 EILs for Commercial / Industrial						160[#1]		320[#2]	95[#3]	1,830[#4]		60[#3]	150[#3]													
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																										
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)																										
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**																					
SB021_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	8.4	6	<1	22	<5	<5	<0.1	<2	8	-	-	-	-	-	-	-	30	10	<10	20	<10	<10
SB021_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	8.3	7	<1	25	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
SB022_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	8.6	8	<1	25	<5	<5	<0.1	<2	6	-	-	-	-	-	-	-	50	<10	<10	10	<10	<10
SB022_6.0-6.1	18/10/2024	Soil	6 - 6.1	Normal	EP2415807	9.0	7	<1	20	<5	<5	<0.1	<2	6	-	-	-	-	-	-	-	50	<10	<10	<10	<10	<10
SB023_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	8.6	5	<1	29	<5	5	<0.1	<2	<5	-	-	-	-	-	-	-	50	<10	<10	<10	<10	<10
SB023_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	8.3	7	<1	35	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	30	<10	<10	<10	<10	<10
SB024_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	8.1	7	<1	38	<5	5	<0.1	2	<5	-	-	-	-	-	-	-	20	<10	<10	<10	<10	<10
SB024_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682	6.4	9	<1	43	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
SB025_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	9.1	6	<1	15	7	33	<0.1	4	38	-	-	-	-	-	-	-	60	<10	<10	<10	<10	<10
SB025_4.9-5.0	18/10/2024	Soil	4.9 - 5	Normal	EP2415807	9.0	8	<1	33	<5	6	<0.1	2	<5	-	-	-	-	-	-	-	50	<10	<10	<10	<10	<10
SB026_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	9.2	<5	<1	7	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	30	<10	<10	<10	<10	<10
SB026_6.9-7.0	18/10/2024	Soil	6.9 - 7	Normal	EP2415807	9.2	7	<1	23	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	50	<10	<10	<10	<10	<10
SB027_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	8.7	<5	<1	7	<5	<5	<0.1	3	12	<20	0.5	<0.1	0.5	850	850	134	60	20	<10	30	<10	20
SB027_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	8.6	<5	<1	6	<5	<5	<0.1	<2	<5	<20	0.1	<0.1	0.1	340	340	67	50	10	<10	20	<10	10
SB027_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB028_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	6.3	<5	<1	4	<5	<5	<0.1	<2	<5	<20	0.6	<0.1	0.6	350	350	38	-	-	-	-	-	-
SB028_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	6.5	<5	<1	5	<5	<5	<0.1	<2	<5	<20	0.6	<0.1	0.6	90	90	31	-	-	-	-	-	-
SB028_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	6.6	<5	<1	8	<5	<5	<0.1	<2	<5	<20	0.7	<0.1	0.7	380	380	72	-	-	-	-	-	-
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	7.1	<5	<1	9	<5	<5	<0.1	<2	<5	<20	0.5	0.2	0.7	170	170	66	-	-	-	-	-	-
SB029_1.9-2.0	22/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB030_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	8.3	<5	<1	5	<5	<5	<0.1	<2	<5	<20	0.6	<0.1	0.6	910	910	101	-	-	-	-	-	-
SB030_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	8.2	<5	<1	3	<5	<5	<0.1	<2	<5	<20	0.4	<0.1	0.4	160	160	75	-	-	-	-	-	-
SB031_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	6.8	<5	<1	<2	<5	<5	<0.1	<2	<5	<20	0.6	<0.1	0.6	500	500	30	<10	<10	<10	<10	<10	<10
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	6.7	<5	<1	<2	<5	<5	<0.1	<2	<5	<20	0.2	<0.1	0.2	100	100	14	<10	<10	<10	<10	<10	<10
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB032_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	8.3	<5	<1	6	<5	6	<0.1	<2	17	<20	5.8	0.4	6.2	1,790	1,800	114	-	-	-	-	-	-
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	8.8	<5	<1	<2	<5	<5	<0.1	<2	<5	<20	1	0.1	1.1	200	200	20	-	-	-	-	-	-
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB033_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	8.9	<5	<1	<2	<5	<5	<0.1	<2	7	<20	1	<0.1	1	280	280	27	-	-	-	-	-	-
SB033_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	8.4	<5	<1	<2	<5	<5	<0.1	<2	<5	<20	<0.1	<0.1	<0.1	40	40	4	-	-	-	-	-	-
SB033_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB034_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	8.8	<5	<1	6	<5	13	<0.1	<2	25	<20	0.4	<0.1	0.4	290	290	58	30	<10	<10	<10	<10	<10
SB034_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	9.0	<5	<1	<2	<5	<5	<0.1	<2	<5	<20	0.3	<0.1	0.3	130	130	17	60	<10	<10	<10	<10	<10
SB034_1.9-2.0	21/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB035_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	7.8	<5	<1	<2	<5	25	<0.1	<2	36	<20	1.4	<0.1	1.4	900	900	58	-	-	-	-	-	-
SB035_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	7.7	<5	<1	<2	<5	<5	<0.1	<2	<5	<20	0.1	<0.1	0.1	80	80	7	-	-	-	-	-	-
SB035_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB036_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	8.5	<5	<1	7	<5	<5	<0.1	<2	6	<20	0.3	<0.1	0.3	160	160	33	10	<10	<10	<10	<10	<10
SB036_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	8.2	<5	<1	8	<5	<5	<0.1	<2	<5	<20	0.2	<0.1	0.2	<20	<20	21	<10	<10	<10	<10	<10	<10
SB037_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	8.6	<5	<1	3	<5	<5	<0.1	<2	<5	<20	0.2	<0.1	0.2	320	320	30	40	<10	<10	<10	<10	<10
SB037_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	8.2	<5	<1	3	<5	<5	<0.1	<2	<5	<20	0.3	<0.1	0.3	80	80	16	20	<10	<10	<10	<10	<10
SB038_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	8.8	<5	<1	4	<5	<5	<0.1	<2	<5	<20	0.4	<0.1	0.4	230	230	39	40	<10	<10	<10	<10	<10
SB038_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	8.3	<5	<1	10	<5	<5	<0.1	<2	<5	<20	0.3	0.1	0.4	30	30	25	10	<10	<10	<10	<10	<10
SB039_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	9.2	<5	<1	5	<5	<5	<0.1	<2	<5	<20	0.2	<0.1	0.2	130	130	40	30	<10	<10	<10	<10	<10
SB039_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	9.2	<5	<1	9	<5	<5	<0.1	<2	<5	<20	1.1	<0.1	1.1	250	250	110	60	<10	<10	<10	50	20
SB040_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	9.0	<5	<1	21	7	7	<0.1	<2	17	<20	0.6	<0.1	0.6	140	140	245	-	-	-	-	-	-
SB040_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	9.3	<5	<1	2	<5	<5	<0.1	<2	<5	<20	0.2	<0.1	0.2	30	30	43	-	-	-	-	-	-
SB040_3.25-3.35	22/10/2024	Soil	3.25 - 3.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB041/MW02_0-0.1	18/11/2024	Soil		Normal	EP2417725	9.2	<5	<1	15	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	-	-	-	-	-	-
SB042_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	8.8	<5	<1	11	<5	10	<0.1	<2	<5	-	-	-	-	-	-	-	40	<10	<10	<10	<10	<10
SB042_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	8.7	<5	<1	13	<5	<5	<0.1	<2	<5	-	-	-	-	-	-	-	30	<10	<10	<10	<10	<10

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

					BTEXN								Total Recoverable Hydrocarbons						
					Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Total Xylene	Naphthalene (VOC)	Total BTEXN	C6-C10 Fraction	C6-C10 Fraction minus BTEX (F1)	>C10-C16 Fraction	>C10-C16 Fraction minus naphthalene (F2)	>C16-C34 Fraction	>C34-C40 Fraction	>C10-C40 Fraction (Sum)
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.2	0.5	0.5	0.5	0.5	0.5	1	0.2	10	10	50	50	100	100	50
CRC CARE Direct Contact HSL-D Commercial / Industrial					*430*	*99,000*	*27,000*			*81,000*			*26,000*		*20,000*		*27,000*	*38,000*	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand					**3**	**NL** [#10]	**NL** [#10]			**230** [#10]				**260** [#10]		**NL** [#10]			
NEPM 2013 EILs for Commercial / Industrial																			
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil					50	85	70			105				180[#11]		120[#12]	300	2,800	
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)																			
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**														
SB001/MW01_0.0-0.05	21/11/2024	Soil		Normal	EP2417725	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB002_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB002_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB003_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB003_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB004_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB004_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB005_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB005_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB006_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB006_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB007_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB007_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB008_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB008_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB009_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB009_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB010_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB010_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB011_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB011_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB012_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB012_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB013_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB013_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB014_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB014_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB015_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB015_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB016_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB016_3.0-3.1	23/10/2024	Soil	3 - 3.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB017_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB017_2.0-2.1	23/10/2024	Soil	2 - 2.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB018_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB018_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB019_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB019_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB020_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB020_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

					BTEXN								Total Recoverable Hydrocarbons						
					Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Total Xylene	Naphthalene (VOC)	Total BTEXN	C6-C10 Fraction	C6-C10 Fraction minus BTEX (F1)	>C10-C16 Fraction	>C10-C16 Fraction minus naphthalene (F2)	>C16-C34 Fraction	>C34-C40 Fraction	>C10-C40 Fraction (Sum)
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.2	0.5	0.5	0.5	0.5	0.5	1	0.2	10	10	50	50	100	100	50
CRC CARE Direct Contact HSL-D Commercial / Industrial					*430*	*99,000*	*27,000*			*81,000*			*26,000*		*20,000*		*27,000*	*38,000*	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand					**3**	**NL** [#10]	**NL** [#10]			**230** [#10]				**260** [#10]		**NL** [#10]			
NEPM 2013 EILs for Commercial / Industrial																			
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil					50	85	70			105				180[#11]		120[#12]	300	2,800	
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)																			
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**														
SB021_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB021_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB022_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB022_6.0-6.1	18/10/2024	Soil	6 - 6.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB023_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB023_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB024_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB024_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB025_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB025_4.9-5.0	18/10/2024	Soil	4.9 - 5	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB026_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB026_6.9-7.0	18/10/2024	Soil	6.9 - 7	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB027_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB027_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB027_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB028_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB028_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB028_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB029_1.9-2.0	22/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB030_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB030_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB031_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB032_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB033_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB033_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB033_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB034_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB034_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB034_1.9-2.0	21/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB035_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB035_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB035_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB036_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB036_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB037_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB037_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB038_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB038_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB039_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB039_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB040_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB040_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB040_3.25-3.35	22/10/2024	Soil	3.25 - 3.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB041/MW02_0-0.1	18/11/2024	Soil		Normal	EP2417725	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2	<10	<10	<50	<50	<100	<100	<50
SB042_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB042_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

													Organochlorine Pesticides																
						a-BHC	b-BHC	d-BHC	Dieldrin	g-BHC (Lindane)	Aldrin	Aldrin + Dieldrin	Chlordane	DDT	4,4'-DDE	DDD	DDT+DDE+DDD	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Chlordane (cis)	Chlordane (trans)	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor epoxide	Methoxychlor	Endosulfan	Hexachlorobenzene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05
CRC CARE Direct Contact HSL-D Commercial / Industrial																													
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil												45	530				3,600				100					50		2,500	2,000	80
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																													
NEPM 2013 EILs for Commercial / Industrial														640[#5]															
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																													
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)																													
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**																								
SB001/MW01_0.0-0.05	21/11/2024	Soil		Normal	EP2417725	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB002_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB002_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB003_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB003_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB004_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB004_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB005_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB005_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB006_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB006_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB007_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB007_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB008_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB008_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB009_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB009_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB010_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB010_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB011_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB011_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB012_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB012_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB013_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB013_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB014_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB014_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB015_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB015_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB016_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB016_3.0-3.1	23/10/2024	Soil	3 - 3.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB017_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB017_2.0-2.1	23/10/2024	Soil	2 - 2.1	Normal	EP2415903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB018_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB018_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB019_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB019_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB020_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB020_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

														Organochlorine Pesticides															
						a-BHC	b-BHC	d-BHC	Dieldrin	g-BHC (Lindane)	Aldrin	Aldrin + Dieldrin	Chlordane	DDT	4,4'-DDE	DDD	DDT+DDE+DDD	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Chlordane (cis)	Chlordane (trans)	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor epoxide	Methoxychlor	Endosulfan	Hexachlorobenzene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05
CRC CARE Direct Contact HSL-D Commercial / Industrial																													
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil												45	530				3,600				100					50		2,500	2,000	80
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																													
NEPM 2013 EILs for Commercial / Industrial														640[#5]															
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																													
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)																													
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**																								
SB021_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB021_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB022_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB022_6.0-6.1	18/10/2024	Soil	6 - 6.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB023_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB023_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB024_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB024_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB025_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB025_4.9-5.0	18/10/2024	Soil	4.9 - 5	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB026_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB026_6.9-7.0	18/10/2024	Soil	6.9 - 7	Normal	EP2415807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB027_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB027_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB027_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB028_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB028_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB028_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB029_1.9-2.0	22/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB030_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB030_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB031_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB032_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB033_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB033_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB033_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB034_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB034_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB034_1.9-2.0	21/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB035_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB035_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB035_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB036_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB036_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB037_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB037_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB038_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB038_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB039_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB039_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB040_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB040_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB040_3.25-3.35	22/10/2024	Soil	3.25 - 3.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB041/MW02_0-0.1	18/11/2024	Soil		Normal	EP2417725	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
SB042_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB042_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

						(n:2) Fluorotelomer Sulfonic Acids				Perfluoroalkane Carboxylic Acids										
						4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorohexanoic acid (PFHxA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoroheptanoic acid (PFHpA)	Perfluorobutanoic acid (PFBA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorooctanoic acid (PFOA)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.0005	0.0005	0.0005	0.0005	0.0002	0.0002	0.0002	0.0002	0.0005	0.0002	0.001	0.0002	0.0002	0.0002	0.0002
CRC CARE Direct Contact HSL-D Commercial / Industrial																				
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																				
NEPM 2013 EILs for Commercial / Industrial																				
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																				
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)																				50[#13]
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**															
SB001/MW01_0.0-0.05	21/11/2024	Soil		Normal	EP2417725	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB002_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB002_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB003_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB003_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB004_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB004_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB005_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB005_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB006_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB006_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB007_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB007_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB008_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB008_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB009_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB009_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB010_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB010_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB011_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB011_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB012_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB012_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB013_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB013_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB014_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB014_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB015_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB015_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB016_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB016_3.0-3.1	23/10/2024	Soil	3 - 3.1	Normal	EP2415903	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB017_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB017_2.0-2.1	23/10/2024	Soil	2 - 2.1	Normal	EP2415903	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB018_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB018_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB019_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB019_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB020_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB020_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

						(n:2) Fluorotelomer Sulfonic Acids				Perfluoroalkane Carboxylic Acids										
						4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorohexanoic acid (PFHxA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoroheptanoic acid (PFHpA)	Perfluorobutanoic acid (PFBA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorooctanoic acid (PFOA)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.0005	0.0005	0.0005	0.0005	0.0002	0.0002	0.0002	0.0002	0.0005	0.0002	0.001	0.0002	0.0002	0.0002	0.0002
CRC CARE Direct Contact HSL-D Commercial / Industrial																				
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																				
NEPM 2013 EILs for Commercial / Industrial																				
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																				
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)																				50[#13]
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**															
SB021_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB021_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB022_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB022_6.0-6.1	18/10/2024	Soil	6 - 6.1	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB023_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB023_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB024_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB024_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB025_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB025_4.9-5.0	18/10/2024	Soil	4.9 - 5	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB026_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB026_6.9-7.0	18/10/2024	Soil	6.9 - 7	Normal	EP2415807	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB027_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB027_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB027_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB028_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB028_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB028_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB029_1.9-2.0	22/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB030_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB030_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB031_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB032_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB033_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB033_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB033_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB034_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB034_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB034_1.9-2.0	21/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB035_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB035_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB035_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB036_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB036_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB037_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB037_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB038_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB038_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB039_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB039_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB040_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB040_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB040_3.25-3.35	22/10/2024	Soil	3.25 - 3.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB041/MW02_0-0.1	18/11/2024	Soil		Normal	EP2417725	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB042_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
SB042_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

senversa

						Perfluoroalkane Sulfonic Acids									Perfluoroalkyl Sulfonamides							PFAS
						Perfluorononane sulfonate (PFNS)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropropanesulfonic acid (PFPrS)	Sum of PFHxS and PFOS	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorooctane sulfonamide (FOSA)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005	0.0002	0.0005	0.0002	0.0002	0.0005	0.0005	0.0005	0.0002	0.0002
CRC CARE Direct Contact HSL-D Commercial / Industrial																						
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																						
NEPM 2013 EILs for Commercial / Industrial																						
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																						
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)							20[#14]		20[#14]					20[#13]								
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**																	
SB001/MW01_0.0-0.05	21/11/2024	Soil		Normal	EP2417725	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0004	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0004
SB002_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0003	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0003
SB002_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0005
SB003_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0003	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0003
SB003_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB004_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.0002	0.0011	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0011	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0013
SB004_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0006	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0006
SB005_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB005_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB006_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB006_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB007_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0003	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0003
SB007_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB008_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0006	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0006
SB008_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0002
SB009_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB009_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB010_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB010_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB011_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB011_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB012_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB012_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB013_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB013_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB014_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB014_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB015_0.0-0.1	24/10/2024	Soil	0 - 0.1	Normal	EP2415925	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB015_0.5-0.6	24/10/2024	Soil	0.5 - 0.6	Normal	EP2415925	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB016_0.5-0.6	23/10/2024	Soil	0.5 - 0.6	Normal	EP2415903	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB016_3.0-3.1	23/10/2024	Soil	3 - 3.1	Normal	EP2415903	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB017_0.0-0.1	23/10/2024	Soil	0 - 0.1	Normal	EP2415903	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB017_2.0-2.1	23/10/2024	Soil	2 - 2.1	Normal	EP2415903	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB018_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB018_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB019_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0003	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0003
SB019_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0003	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0003
SB020_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB020_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

						Perfluoroalkane Sulfonic Acids									Perfluoroalkyl Sulfonamides							PFAS
						Perfluorononane sulfonate (PFNS)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropropanesulfonic acid (PFPrS)	Sum of PFHxS and PFOS	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorooctane sulfonamide (FOSA)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005	0.0002	0.0005	0.0002	0.0002	0.0005	0.0005	0.0005	0.0002	0.0002
CRC CARE Direct Contact HSL-D Commercial / Industrial																						
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																						
NEPM 2013 EILs for Commercial / Industrial																						
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																						
PFAS NEMP 2.0: Health, Industrial/commercial (HIL D)							20[#14]		20[#14]					20[#13]								
Field ID	**Date**	**Matrix Type**	**Depth**	**Sample Type**	**Lab Report Number**																	
SB021_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB021_0.5-0.6	18/10/2024	Soil	0.5 - 0.6	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB022_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB022_6.0-6.1	18/10/2024	Soil	6 - 6.1	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB023_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB023_0.5-0.6	17/10/2024	Soil	0.5 - 0.6	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB024_0.0-0.1	17/10/2024	Soil	0 - 0.1	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB024_1.0-1.1	17/10/2024	Soil	1 - 1.1	Normal	EP2415682	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB025_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0002	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0008	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0008
SB025_4.9-5.0	18/10/2024	Soil	4.9 - 5	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB026_0.0-0.1	18/10/2024	Soil	0 - 0.1	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB026_6.9-7.0	18/10/2024	Soil	6.9 - 7	Normal	EP2415807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB027_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0003	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0003
SB027_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB027_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB028_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB028_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB028_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB029_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB029_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB029_1.9-2.0	22/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB030_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB030_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB031_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB031_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB032_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0002
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB032_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB033_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB033_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB033_1.0-1.1	22/10/2024	Soil	1 - 1.1	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB034_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB034_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB034_1.9-2.0	21/10/2024	Soil	1.9 - 2	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB035_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB035_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB035_0.25-0.35	22/10/2024	Soil	0.25 - 0.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB036_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB036_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB037_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB037_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB038_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB038_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB039_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB039_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB040_0.0-0.1	22/10/2024	Soil	0 - 0.1	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB040_0.5-0.6	22/10/2024	Soil	0.5 - 0.6	Normal	EP2415957	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB040_3.25-3.35	22/10/2024	Soil	3.25 - 3.35	Normal	EP2417221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB041/MW02_0-0.1	18/11/2024	Soil		Normal	EP2417725	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002
SB042_0.0-0.1	21/10/2024	Soil	0 - 0.1	Normal	EP2415810	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	0.0002
SB042_0.5-0.6	21/10/2024	Soil	0.5 - 0.6	Normal	EP2415810	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002

Table 2 - Soil Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

Comments

#1 NEPC (2013) EIL - Commercial and Industrial. Value applies to aged arsenic (contamination present in soil for at least two years). For fresh contamination refer Schedule B7 of the NEPM.
#2 NEPC (2013) EIL - Commercial and Industrial. Value is for chromium III. Initial screening value applicable to all aged soils (see text). Derive site-specific value if contamination is fresh (<2 years) or if EILs are exceeded.
#3 NEPC (2013) EIL - Commercial and Industrial. Initial screening value applicable to all aged soils (see text). Derive site-specific value if contamination is fresh (<2 years) or if EILs are exceeded.
#4 NEPC (2013) EIL - Commercial and Industrial. Initial screening value applicable to all aged soils (see text). Derive site-specific value if contamination is fresh (<2 years) or if EILs are exceeded. Assumes ABC of 30 mg/kg
#5 NEPC (2013) EIL - Commercial and Industrial. Value applies to both fresh and aged contamination.
#6 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (refer Shedule B7).
#7 Value is for Chromium (VI)
#8 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bioavailability should be considered where appropriate.
#9 Elemental mercury: HIL does not address elemental mercury. a site specific assessment should be considered if elemental mercury is present, or suspected to be present.
#10 Derived soil HSL exceeds soil saturation concentration
#11 To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#12 To obtain F2 subtract napthalene from the >C10 - C16 fraction.
#13 PFAS National Environmental Management Plan Version 2.0', Heads of EPA Australia and New Zealand 2020
#14 PFAS NEMP 2.0. Guideline is for PFOS+PFHxS

Table 3a - Groundwater Well Details
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

Bore ID	Eastings	Northings	TOC Elevation	Ground Elevation	Date	Cover Height	Groundwater Depth	Groundwater Depth	Groundwater Elevation	Total well depth
	MGA	MGA	m AHD	m AHD	-	m	m bgl	m btoc	m AHD	m btoc
GBH01	385,564	6,435,573	17.12	17.18	29/11/2024	-0.06	16.554	16.494	0.626	30.16
GBH01	385,564	6,435,573	17.12	17.18	15/01/2025	-0.06	16.569	16.509	0.611	30.13
GBH03	386,116	6,435,885	10.71	10.79	28/11/2024	-0.08	10.049	9.969	0.741	30.45
GBH03	386,116	6,435,885	10.71	10.79	15/01/2025	-0.08	10.067	9.987	0.723	30.41
GBH04r	387,489	6,435,458	10.074	9.528	16/01/2025	0.546	8.513	9.059	1.015	13.41
GBH05	390,980	6,435,837	16.39	16.48	28/11/2024	-0.09	4.917	4.827	11.563	8.973
GBH05	390,980	6,435,837	16.39	16.48	16/01/2025	-0.09	5.188	5.098	11.292	8.096
GBH06	391,435	6,435,776	22.83	22.96	16/01/2025	-0.13	10.718	10.588	12.242	15.24
GBH07	391,805	6,435,672	24.93	25.02	29/11/2024	-0.09	12.124	12.034	12.896	13.01
GBH07	391,805	6,435,672	24.93	25.02	16/01/2025	-0.09	12.01	11.92	13.01	15.23
GBH08	392,022	6,345,605	32.77	32.87	28/11/2024	-0.1	13.467	13.367	19.403	18
GBH08	392,022	6,345,605	32.77	32.87	16/01/2025	-0.1	13.635	13.535	19.235	17.92
MW01	385,267	6,436,507	11.143	11.186	29/11/2024	-0.043	10.529	10.486	0.657	12.388
MW01	385,267	6,436,507	11.143	11.186	15/01/2025	-0.043	10.52	10.477	0.666	12.38
MW02	386,078	6,435,251	21.983	22.048	29/11/2024	-0.065	21.227	21.162	0.821	23.5
MW02	386,078	6,435,251	21.983	22.048	15/01/2025	-0.065	21.28	21.215	0.768	23.48

Table 3b - Groundwater Field Parameters
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

Bore ID	Date	Dissolved Oxygen	Electrical Conductivity	Total Dissolved Solids	pH	Reduction / Oxidation Potential	Redox (Eh)	Temperature	Comments
	-	mg/L	µS/cm	mg/L	pH units	mV	mV	°C	
GBH01	29/11/2024	1.6	1052	673	7.09	59.7	259.7	22.1	Colourless, no sheen, no odour, non-turbid
GBH01	15/01/2025	0.45	1090	698	7.09	21.7	221.7	23.5	Colourless, no sheen, no odour, non-turbid
GBH03	28/11/2024	0.86	946	605	7.01	22.8	222.8	22.4	Colourless, no sheen, no odour, slightly turbid
GBH03	15/01/2025	1.13	1014	649	7.02	18.2	218.2	22.9	Colourless, no sheen, no odour, slightly turbid
GBH04	16/01/2025	0.76	1561	999	7.03	-59.9	140.1	24.4	Colourless, no sheen, no odour, slightly turbid
GBH05	28/11/2024	0.25	337	216	5.61	57	257	23.9	Colourless, no sheen, no odour, non-turbid
GBH05	16/01/2025	1.41	255	163	5.64	10.7	210.7	25.7	Colourless, no sheen, no odour, slightly turbid
GBH06	16/01/2025	0.73	206	132	5.78	-72.7	127.3	23.7	Light brown, no sheen, sulphorous odour, moderately turbid
GBH07	29/11/2024	1.67	449.5	288	6.24	13.5	213.5	22.3	Light brown, no sheen, sulphorous odour, moderately turbid
GBH07	16/01/2025	2.9	526	337	6.43	26.2	226.2	23.8	Colourless, no sheen, no odour, slightly turbid
GBH08	28/11/2024	0.65	290.1	186	5.79	-71	129	22.5	Brown, no sheen, sulphorous odour, moderately turbid
GBH08	16/01/2025	0.15	229	147	5.81	-69	131	23.4	Colourless, no sheen, no odour, slightly turbid
MW01	29/11/2024	1.64	1042	667	7.26	55.7	255.7	22.4	Colourless, no sheen, no odour, non-turbid
MW01	15/01/2025	2.56	930	595	7.19	41.2	241.2	22.9	Colourless, no sheen, no odour, slightly turbid
MW02	29/11/2024	1.65	1156	740	6.94	32.3	232.3	22.4	Colourless, no sheen, no odour, slightly turbid
MW02	15/01/2025	2.91	1139	729	6.91	30.9	230.9	22.6	Colourless, no sheen, no odour, slightly turbid

Notes

TDS calculated based on a conversion factor of 0.64 i.e. TDS (ppm) = 0.64 x EC (µS/cm)

mg/L: miligram per litre

µS/cm: microsiemens per centimetre

mV: millivolts

°C: celsius

Red shading denotes anaerobic / reducing (< 0.5 mg/L or <+50 mV)

Green shading denotes aerobic / oxidising (> 0.5 mg/L or >+50 mV)

Table 4: Groundwater Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

					Physical Parameters			Metals														
					Electrical Conductivity	Total Dissolved Solids	pH (Lab)	Aluminium	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (filtered)	Cobalt (filtered)	Copper (filtered)	Iron	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Molybdenum (filtered)	Nickel (filtered)	Selenium (filtered)	Zinc (filtered)
					µS/cm	mg/L	pH Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL					1	5	0.01	0.01	0.01	0.001	0.0001	0.001	0.001	0.001	0.01	0.01	0.001	0.001	0.0001	0.001	0.001	0.001	0.005
DOH (2014) Non-Potable Groundwater Use (NPUG) – excluding garden produce								**0.2**	**0.2**		**0.02**			**20**	**0.3**	**0.3**	**0.1**	**5**	**0.01**	**0.5**	**0.2**	**0.1**	**3**
Draft NHMRC (2024) Health Based Drinking Water PFAS Guidelines																						
Groundwater HSLs - NEPM Setting 'D' - Commercial / Industrial - Default Screen																						
Aquatic ecosystems DGV - slightly to moderately disturbed (95%) - freshwater								0.055[#6]	0.055[#6]	0.013[#7]	0.0002[#8]	0.001[#9]	0.0014[#10]	0.0014[#11]			0.0034[#8]	1.9[#11]	0.00006[#12]	0.034[#10]	0.011[#8]	0.005[#12]	0.008[#8]
Irrigation - STV				6-8.5[#18]	20[#19]	20[#19]	2[#19]	0.05[#19]	1[#19]	0.1[#19]	5[#19]	10[#19]	10[#19]	5[#19]	10[#19]	0.002[#19]	0.05[#19]	2[#19]	0.05[#19]	5[#19]		
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																		
GBH01	GHB01	29/11/2024	Normal	EP2417960	-	-	-	0.07	<0.01	0.001	<0.0001	<0.001	<0.001	0.002	0.16	<0.05	<0.001	0.002	<0.0001	0.004	<0.001	<0.01	<0.005
	GBH01	15/01/2025	Normal	EP2500657	1,050	611	7.99	0.01	<0.01	0.002	<0.0001	<0.001	<0.001	<0.001	<0.05	<0.05	<0.001	0.004	<0.0001	0.006	<0.001	<0.01	<0.005
GBH03	GHB03	28/11/2024	Normal	EP2417960	-	-	-	**2.57**	<0.01	0.001	<0.0001	<0.001	<0.001	<0.001	**3.81**	<0.05	<0.001	<0.001	<0.0001	0.005	<0.001	<0.01	<0.005
	GHB03	15/01/2025	Normal	EP2500657	987	552	7.90	0.07	<0.01	0.002	<0.0001	<0.001	<0.001	<0.001	0.06	<0.05	<0.001	<0.001	<0.0001	0.005	<0.001	<0.01	<0.005
GBH04	GHB04	16/01/2025	Normal	EP2500657	1,530	939	7.80	**1.61**	<0.01	0.003	<0.0001	<0.001	0.003	<0.001	**1.78**	<0.05	<0.001	0.538	<0.0001	0.005	0.004	<0.01	<0.005
GBH05	GHB05	28/11/2024	Normal	EP2417960	-	-	-	**6.31**	0.1	<0.001	<0.0001	<0.001	<0.001	<0.001	**2.93**	**0.46**	<0.001	0.018	<0.0001	<0.001	0.001	<0.01	<0.005
	GHB05	16/01/2025	Normal	EP2500657	245	245	6.42	**8.19**	0.05	<0.001	<0.0001	<0.001	<0.001	<0.001	**2.54**	0.29	<0.001	0.014	<0.0001	<0.001	0.001	<0.01	<0.005
GBH06	GHB06	16/01/2025	Normal	EP2500657	198	167	6.37	**8.87**	0.08	0.001	<0.0001	<0.001	<0.001	<0.001	**3.9**	**1.47**	<0.001	0.029	<0.0001	<0.001	0.001	<0.01	**4.15**
GBH07	GHB07	29/11/2024	Normal	EP2417960	-	-	-	**3.55**	0.03	<0.001	<0.0001	<0.001	0.001	<0.001	**10.2**	**1.42**	<0.001	0.084	<0.0001	<0.001	<0.001	<0.01	<0.005
	GHB07	16/01/2025	Normal	EP2500657	498	302	7.25	**0.48**	0.03	<0.001	<0.0001	<0.001	<0.001	<0.001	**1.21**	0.11	<0.001	0.031	<0.0001	<0.001	<0.001	<0.01	<0.005
GBH08	GHB08	28/11/2024	Normal	EP2417960	-	-	-	**1.16**	0.16	<0.001	<0.0001	<0.001	<0.001	<0.001	**2.21**	**1.61**	<0.001	0.063	<0.0001	0.001	0.001	<0.01	<0.005
	GBH08	16/01/2025	Normal	EP2500657	213	152	6.53	**0.91**	0.18	<0.001	<0.0001	<0.001	<0.001	<0.001	**1.91**	**1.69**	<0.001	0.069	<0.0001	<0.001	0.001	<0.01	0.005
MW01	MW01	29/11/2024	Normal	EP2417960	-	-	-	0.05	<0.01	0.001	<0.0001	<0.001	<0.001	<0.001	0.1	<0.05	<0.001	0.004	<0.0001	0.002	<0.001	<0.01	<0.005
	MW01	15/01/2025	Normal	EP2500657	911	517	7.97	0.02	<0.01	0.001	<0.0001	<0.001	<0.001	<0.001	<0.05	<0.05	<0.001	<0.001	<0.0001	0.002	0.001	<0.01	0.005
MW02	MW02	29/11/2024	Normal	EP2417960	-	-	-	0.08	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.001	0.16	<0.05	<0.001	0.027	<0.0001	0.004	<0.001	<0.01	<0.005
	MW02	15/01/2025	Normal	EP2500657	1,090	640	7.85	0.06	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.001	0.1	<0.05	<0.001	0.005	<0.0001	0.003	<0.001	<0.01	<0.005

Table 4: Groundwater Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

						Phys	Inorganics																				
						Electrical Conductivity	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Total Oxidised Nitrogen (as N)	Total Kjeldahl Nitrogen	Total Nitrogen (as N)	Reactive Phosphorus (as P)	Phosphorus (as P)	Sulfide (as S)	Calcium (filtered)	Chloride	Magnesium (filtered)	Potassium (filtered)	Sulfate (as SO4) (filtered)	Sodium (filtered)	Anions Total	Cations Total	Ionic Balance
						µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%
EQL						1	0.01	0.01	0.01	0.01	0.1	0.1	10	0.01	0.1	0.5	1	0.5	0.5	1	0.5	0.01	0.01	0.01
DOH (2014) Non-Potable Groundwater Use (NPUG) – excluding garden produce							**0.388**	**113**	**9.12**								**250**			**1,000**					
Draft NHMRC (2024) Health Based Drinking Water PFAS Guidelines																									
Groundwater HSLs - NEPM Setting 'D' - Commercial / Industrial - Default Screen																									
Aquatic ecosystems DGV - slightly to moderately disturbed (95%) - freshwater							0.9[#11]	2.4[#13]																	
Irrigation - STV												25[#19]		0.8[#19]			175[#19]			115[#19]					
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																					
GBH01	GHB01	29/11/2024	Normal	EP2417960	-	0.17	2.51	<0.01	2.51	1	3.5	80	0.14	-	83	98	8	7	54	124	10.9	10.4	2.3
	GBH01	15/01/2025	Normal	EP2500657	1,050	**0.46**	2.04	0.01	2.05	0.8	2.8	20	0.04	<0.1	74	130	8	8	65	145	12	10.9	4.86
GBH03	GHB03	28/11/2024	Normal	EP2417960	-	<0.01	2.6	<0.01	2.6	0.8	3.4	30	0.16	-	96	105	10	4	44	100	10.1	10.1	0.23
	GBH03	15/01/2025	Normal	EP2500657	987	<0.01	2.67	<0.01	2.67	0.5	3.2	20	0.02	<0.1	97	145	10	4	43	97	11.1	9.98	5.2
GBH04	GHB04	16/01/2025	Normal	EP2500657	1,530	**6.41**	0.19	0.02	0.21	6.9	7.1	<10	0.06	<0.1	104	197	24	22	191	181	17.7	15.6	6.38
GBH05	GHB05	28/11/2024	Normal	EP2417960	-	0.02	0.14	<0.01	0.14	0.5	0.6	<10	0.06	-	17	50	3	2	36	25	2.3	2.23	1.46
	GBH05	16/01/2025	Normal	EP2500657	245	0.02	1.42	0.02	1.44	0.6	2	<10	0.06	<0.1	14	42	3	3	27	29	2.13	2.28	3.49
GBH06	GHB06	16/01/2025	Normal	EP2500657	198	0.12	0.06	<0.01	0.06	0.8	0.9	<10	0.11	<0.1	5	25	11	4	33	24	1.96	2.3	8.09
GBH07	GHB07	29/11/2024	Normal	EP2417960	-	0.15	3.45	0.04	3.49	1.4	4.9	<10	0.05	-	34	40	10	11	150*	22	3.64	3.76	1.55
	GBH07	16/01/2025	Normal	EP2500657	498	0.03	5.18	<0.01	5.18	0.8	6	<10	<0.01	<0.1	43	75	16	8	64	29	5.23	4.93	2.93
GBH08	GHB08	28/11/2024	Normal	EP2417960	-	0.05	1.17	0.02	1.19	0.7	1.9	<10	0.04	-	13	16	9	4	34	12	2	2.01	0.38
	GBH08	16/01/2025	Normal	EP2500657	213	0.09	1.31	<0.01	1.31	0.5	1.8	<10	0.02	<0.1	12	17	10	4	64	12	2.57	2.16	8.72
MW01	MW01	29/11/2024	Normal	EP2417960	-	0.06	7.25	0.2	7.45	0.8	8.2	20	0.02	-	103	108	18	5	54	90	9.86	10.7	3.89
	MW01	15/01/2025	Normal	EP2500657	911	<0.01	8.62	<0.01	8.62	0.8	9.4	10	0.02	<0.1	105	111	18	4	43	62	9.74	9.52	1.14
MW02	MW02	29/11/2024	Normal	EP2417960	-	<0.01	3.07	0.02	3.09	0.6	3.7	20	0.07	-	110	93	11	5	56	128	11.9	12.1	0.7
	MW02	15/01/2025	Normal	EP2500657	1,090	<0.01	3.86	<0.01	3.86	0.5	4.4	<10	0.03	<0.1	107	120	11	5	53	124	12.6	11.8	3.58

Table 4: Groundwater Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

					Phys	Alkalinity					BTEX								Total Recoverable Hydrocarbons							Phenols					
					Electrical Conductivity	Bicarbonate Alkalinity (as CaCO3)	Carbonate Alkalinity (as CaCO3)	Hydroxide Alkalinity (as CaCO3)	Total Alkalinity (as CaCO3)	Acidity (as CaCO3)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Naphthalene (VOC)	Total Xylene	Total BTEX	C6-C10 Fraction	C6-C10 Fraction minus BTEX (F1)	>C10-C16 Fraction	>C10-C16 Fraction minus naphthalene (F2)	>C16-C34 Fraction	>C34-C40 Fraction	>C10-C40 Fraction (Sum)	2-Methylphenol	2-Nitrophenol	2,4-Dimethylphenol	3-&4-Methylphenol (m&p-cresol)	4-Chloro-3-methylphenol	Phenol
					µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL					1	1	1	1	1	1	1	1	1	2	1	1	2	1	20	20	20	20	50	50	50	1	1	1	2	1	1
DOH (2014) Non-Potable Groundwater Use (NPUG) – excluding garden produce											**10**	**25**	**3**				**20**														
Draft NHMRC (2024) Health Based Drinking Water PFAS Guidelines																															
Groundwater HSLs - NEPM Setting 'D' - Commercial / Industrial - Default Screen											5,000[#4]	NL [#4]	NL [#4]				NL [#4]			6,000[#4]		NL [#4]									
Aquatic ecosystems DGV - slightly to moderately disturbed (95%) - freshwater											950[#11]	180[#11]	80[#11]		350[#11]					440[#14]		440[#14]	640[#15]	640[#16]				2[#8]			320[#11]
Irrigation - STV																															
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																											
GBH01	GHB01	29/11/2024	Normal	EP2417960	-	349	<1	<1	349	14	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0
	GBH01	15/01/2025	Normal	EP2500657	1,050	348	<1	<1	348	19	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
GBH03	GHB03	28/11/2024	Normal	EP2417960	-	312	<1	<1	312	18	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
	GBH03	15/01/2025	Normal	EP2500657	987	305	<1	<1	305	21	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
GBH04	GHB04	16/01/2025	Normal	EP2500657	1,530	410	<1	<1	410	37	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
GBH05	GHB05	28/11/2024	Normal	EP2417960	-	7	<1	<1	7	-	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
	GBH05	16/01/2025	Normal	EP2500657	245	14	<1	<1	14	22	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
GBH06	GHB06	16/01/2025	Normal	EP2500657	198	28	<1	<1	28	26	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
GBH07	GHB07	29/11/2024	Normal	EP2417960	-	80	<1	<1	80	20	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
	GBH07	16/01/2025	Normal	EP2500657	498	89	<1	<1	89	20	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	280	140	420	-	-	-	-	-	-
GBH08	GHB08	28/11/2024	Normal	EP2417960	-	42	<1	<1	42	25	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
	GBH08	16/01/2025	Normal	EP2500657	213	38	<1	<1	38	40	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
MW01	MW01	29/11/2024	Normal	EP2417960	-	285	<1	<1	285	10	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
	MW01	15/01/2025	Normal	EP2500657	911	286	<1	<1	286	16	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
MW02	MW02	29/11/2024	Normal	EP2417960	-	407	<1	<1	407	19	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-
	MW02	15/01/2025	Normal	EP2500657	1,090	408	<1	<1	408	33	<1	<2	<2	<2	<2	<5	<2	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-

Table 4: Groundwater Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

						Phys	Halogenated Phenols						MAH									Halogenated Benzenes									Halogenated Hydrocarbons				
						Electrical Conductivity	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2-Chlorophenol	Pentachlorophenol	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butylbenzene	tert-Butylbenzene	Styrene	1,2,3-Trichlorobenzene	1,2-Dichlorobenzene	1,2,4-Trichlorobenzene	1,3-Dichlorobenzene	2-Chlorotoluene	1,4-Dichlorobenzene	4-Chlorotoluene	Bromobenzene	Chlorobenzene	1,2-Dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane
						µS/cm	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						1	1	1	1	1	1	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	50	5	50
DOH (2014) Non-Potable Groundwater Use (NPUG) – excluding garden produce								**200**	**2,000**		**3,000**	**100**									**4**	**5**	**1**		**20**		**0.3**			**10**		**10**			
Draft NHMRC (2024) Health Based Drinking Water PFAS Guidelines																																			
Groundwater HSLs - NEPM Setting 'D' - Commercial / Industrial - Default Screen																																			
Aquatic ecosystems DGV - slightly to moderately disturbed (95%) - freshwater								3[#12]	120[#12]	34[#8]	340[#12]	3.6[#12]			30[#11]							3[#12]	160[#11]	85[#12]	260[#11]		60[#11]			55[#11]					
Irrigation - STV																																			
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																															
GBH01	GHB01	29/11/2024	Normal	EP2417960	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50
	GHB01	15/01/2025	Normal	EP2500657	1,050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH03	GHB03	28/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GHB03	15/01/2025	Normal	EP2500657	987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH04	GHB04	16/01/2025	Normal	EP2500657	1,530	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH05	GHB05	28/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GHB05	16/01/2025	Normal	EP2500657	245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH06	GHB06	16/01/2025	Normal	EP2500657	198	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH07	GHB07	29/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GHB07	16/01/2025	Normal	EP2500657	498	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH08	GHB08	28/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GHB08	16/01/2025	Normal	EP2500657	213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01	MW01	29/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW01	15/01/2025	Normal	EP2500657	911	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02	MW02	29/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW02	15/01/2025	Normal	EP2500657	1,090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4: Groundwater Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

						Phys	Chlorinated Hydrocarbons																																
						Electrical Conductivity	1,1-Dichloropropene	1,1-Dichloroethane	1,1-Dichloroethene	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,2-Dibromo-3-chloropropane	1,1,2-Trichloroethane	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	1,2-Dichloroethane	1,3-Dichloropropane	1,2-Dichloropropane	2,2-Dichloropropane	Bromodichloromethane	Bromoform	Carbon Tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,4-Dichloro-2-butene	cis-1,2-Dichloroethene	Dibromomethane	cis-1,3-Dichloropropene	Hexachlorobutadiene	Pentachloroethane	Tetrachloroethene	trans-1,4-Dichloro-2-butene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Vinyl Chloride
						µS/cm	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	5	50	5	5	5	5	5	5	5	5	5	5	5	50
DOH (2014) Non-Potable Groundwater Use (NPUG) – excluding garden produce									**300**						**30**						**30**										**7**		**500[#1]**					**3**
Draft NHMRC (2024) Health Based Drinking Water PFAS Guidelines																																							
Groundwater HSLs - NEPM Setting 'D' - Commercial / Industrial - Default Screen																																							
Aquatic ecosystems DGV - slightly to moderately disturbed (95%) - freshwater									700[#11]		270[#11]		6,500[#11]	400[#11]		1,900[#11]	1,100[#11]	900[#11]			240[#11]			370[#11]							80[#11]	70[#11]					330[#11]	100[#11]
Irrigation - STV																																							
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																																				
GBH01	GHB01	29/11/2024	Normal	EP2417960	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
	GBH01	15/01/2025	Normal	EP2500657	1,050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH03	GHB03	28/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GBH03	15/01/2025	Normal	EP2500657	987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH04	GHB04	16/01/2025	Normal	EP2500657	1,530	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH05	GHB05	28/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GBH05	16/01/2025	Normal	EP2500657	245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH06	GHB06	16/01/2025	Normal	EP2500657	198	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH07	GHB07	29/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GBH07	16/01/2025	Normal	EP2500657	498	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GBH08	GHB08	28/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GBH08	16/01/2025	Normal	EP2500657	213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01	MW01	29/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW01	15/01/2025	Normal	EP2500657	911	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02	MW02	29/11/2024	Normal	EP2417960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW02	15/01/2025	Normal	EP2500657	1,090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4: Groundwater Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

									Phys	Solvents					Organochlorine Pesticides																
									Electrical Conductivity	Methyl Ethyl Ketone (MEK)	2-Hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	a-BHC	b-BHC	d-BHC	Dieldrin	g-BHC (Lindane)	Aldrin	Aldrin + Dieldrin	Chlordane	DDT	4,4'-DDE	DDD	DDT+DDE+DDD	Endosulfan I	Endosulfan II	Endosulfan sulfate
									µS/cm	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL									1	50	50	50	5	50	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.002	0.001	0.001	0.001	0.01	0.001	0.001	0.001
DOH (2014) Non-Potable Groundwater Use (NPUG) – excluding garden produce																			**100**		**3**	**20**	**90**						
Draft NHMRC (2024) Health Based Drinking Water PFAS Guidelines																													
Groundwater HSLs - NEPM Setting 'D' - Commercial / Industrial - Default Screen																													
Aquatic ecosystems DGV - slightly to moderately disturbed (95%) - freshwater													20[#10]					0.01[#10]	0.2[#11]	0.001[#10]		0.03[#12]	0.006[#12]						
Irrigation - STV																													
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																									
GBH01	GHB01	29/11/2024	Normal	EP2417960	-	<50	<50	<50	<5	<50	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	GBH01	15/01/2025	Normal	EP2500657	1,050	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
GBH03	GHB03	28/11/2024	Normal	EP2417960	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	GHB03	15/01/2025	Normal	EP2500657	987	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
GBH04	GHB04	16/01/2025	Normal	EP2500657	1,530	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
GBH05	GHB05	28/11/2024	Normal	EP2417960	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	GHB05	16/01/2025	Normal	EP2500657	245	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
GBH06	GHB06	16/01/2025	Normal	EP2500657	198	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
GBH07	GHB07	29/11/2024	Normal	EP2417960	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	GHB07	16/01/2025	Normal	EP2500657	498	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
GBH08	GHB08	28/11/2024	Normal	EP2417960	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	GBH08	16/01/2025	Normal	EP2500657	213	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
MW01	MW01	29/11/2024	Normal	EP2417960	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	MW01	15/01/2025	Normal	EP2500657	911	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
MW02	MW02	29/11/2024	Normal	EP2417960	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	MW02	15/01/2025	Normal	EP2500657	1,090	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Table 4: Groundwater Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

						Phys	Organochlorine Pesticides												(n:2) Fluorotelomer Sulfonic Acids				Perfluoroalkane Carboxylic Acids										
						Electrical Conductivity	Endrin	Chlordane (cis)	Chlordane (trans)	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor epoxide	Methoxychlor	Endosulfan	Oxychlordane	Hexachlorobenzene	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorohexanoic acid (PFHxA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoroheptanoic acid (PFHpA)	Perfluorobutanoic acid (PFBA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorooctanoic acid (PFOA)
						µS/cm	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						1	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0005	0.0005
DOH (2014) Non-Potable Groundwater Use (NPUG) – excluding garden produce															**200**																	**5.6**[#2]
Draft NHMRC (2024) Health Based Drinking Water PFAS Guidelines																																2[#20]
Groundwater HSLs - NEPM Setting 'D' - Commercial / Industrial - Default Screen																																
Aquatic ecosystems DGV - slightly to moderately disturbed (95%) - freshwater							0.01[#12]					0.01[#12]		0.005[#10]	0.03[#12]		0.05[#12]															19[#17]
Irrigation - STV																																
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																													
GBH01	GHB01	29/11/2024	Normal	EP2417960	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0045	<0.0005	<0.0005	<0.0005	0.0008
	GBH01	15/01/2025	Normal	EP2500657	1,050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0053	<0.0005	<0.0005	<0.0005	0.0009
GBH03	GHB03	28/11/2024	Normal	EP2417960	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
	GBH03	15/01/2025	Normal	EP2500657	987	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	0.002	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
GBH04	GHB04	16/01/2025	Normal	EP2500657	1,530	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	0.01	<0.001	<0.001	0.026*	<0.0005	0.0018	0.0195	<0.0020	0.025*	0.0276	<0.0005	<0.0008	<0.0005	0.0606
GBH05	GHB05	28/11/2024	Normal	EP2417960	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	0.0025	<0.0005	<0.0005	0.0032	<0.0005	0.0022	<0.0020	<0.0005	<0.0005	<0.0005	0.0006
	GBH05	16/01/2025	Normal	EP2500657	245	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	0.005	<0.0005	<0.0005	0.0038	<0.0005	0.0033	<0.0040	<0.0005	<0.0005	<0.0005	0.0007
GBH06	GHB06	16/01/2025	Normal	EP2500657	198	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0008	<0.0005	<0.0005	<0.0039	<0.0005	<0.0005	<0.0005	0.0005
GBH07	GHB07	29/11/2024	Normal	EP2417960	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
	GBH07	16/01/2025	Normal	EP2500657	498	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0040	<0.0005	<0.0005	<0.0005	<0.0005
GBH08	GHB08	28/11/2024	Normal	EP2417960	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	0.002	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
	GBH08	16/01/2025	Normal	EP2500657	213	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0040	<0.0005	<0.0005	<0.0005	<0.0005
MW01	MW01	29/11/2024	Normal	EP2417960	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	0.0223	<0.0005	<0.0005	0.0257	<0.0005	0.012	0.0117	<0.0005	<0.0005	<0.0005	0.0118
	MW01	15/01/2025	Normal	EP2500657	911	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	0.0176	<0.0005	<0.0005	0.0226	<0.0005	0.0078	0.0128	<0.0005	<0.0005	<0.0005	0.0081
MW02	MW02	29/11/2024	Normal	EP2417960	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005
	MW02	15/01/2025	Normal	EP2500657	1,090	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005

Table 4: Groundwater Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

						Physi	Perfluoroalkane Sulfonic Acids								Perfluoroalkyl Sulfonamides								
						Electrical Conductivity	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropropanesulfonic acid (PFPrS)	Sum of PFHxS and PFOS	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorooctane sulfonamide (FOSA)	Sum of PFAS
						µS/cm	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						1	0.0001	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.0002	0.001	0.0005	0.0005	0.001	0.001	0.001	0.0005	0.0002
DOH (2014) Non-Potable Groundwater Use (NPUG) – excluding garden produce							**0.7**[#3]		**0.7**[#3]					**0.7**[#2]							
Draft NHMRC (2024) Health Based Drinking Water PFAS Guidelines							0.04[#21]		0.3[#22]			10[#23]									
Groundwater HSLs - NEPM Setting 'D' - Commercial / Industrial - Default Screen																					
Aquatic ecosystems DGV - slightly to moderately disturbed (95%) - freshwater							0.00023[#17]														
Irrigation - STV																					
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																		
GBH01	GHB01	29/11/2024	Normal	EP2417960	-	0.0178	0.005	0.0263	0.0006	<0.0005	0.0091	0.0022	0.0441	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0663
	GHB01	15/01/2025	Normal	EP2500657	1,050	0.0207	0.0053	0.0281	0.0006	<0.0005	0.0092	<0.0020	0.0488	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0701
GBH03	GHB03	28/11/2024	Normal	EP2417960	-	0.0005	0.0009	0.0018	<0.0005	<0.0005	0.0015	<0.0020	0.0023	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0047
	GHB03	15/01/2025	Normal	EP2500657	987	0.0004	0.0008	0.0015	<0.0005	<0.0005	0.0014	<0.0020	0.0019	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0061
GBH04	GHB04	16/01/2025	Normal	EP2500657	1,530	0.0465	0.0099	0.148	0.0027	<0.0008	0.014	0.0027	0.194	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.376
GBH05	GHB05	28/11/2024	Normal	EP2417960	-	0.0029	0.0006	0.0075	<0.0005	<0.0005	<0.0005	<0.0020	0.0104	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0195
	GHB05	16/01/2025	Normal	EP2500657	245	0.0014	<0.0005	0.0097	<0.0005	<0.0005	0.0006	<0.0020	0.0111	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0245
GBH06	GHB06	16/01/2025	Normal	EP2500657	198	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0020	0.0008	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0013
GBH07	GHB07	29/11/2024	Normal	EP2417960	-	0.0018	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0020	0.0023	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0023
	GHB07	16/01/2025	Normal	EP2500657	498	0.0025	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0020	0.0032	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0032
GBH08	GHB08	28/11/2024	Normal	EP2417960	-	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0020	<0.0002	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.002
	GHB08	16/01/2025	Normal	EP2500657	213	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0020	<0.0002	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.0002
MW01	MW01	29/11/2024	Normal	EP2417960	-	0.0324	0.0059	0.0388	0.0013	<0.0005	0.0084	0.0021	0.0712	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.172
	MW01	15/01/2025	Normal	EP2500657	911	0.0325	0.0059	0.0344	0.0013	<0.0005	0.0069	<0.0020	0.0669	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.15
MW02	MW02	29/11/2024	Normal	EP2417960	-	0.0014	0.0028	0.0098	<0.0005	<0.0005	0.0046	<0.0020	0.0112	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0186
	MW02	15/01/2025	Normal	EP2500657	1,090	0.0014	0.003	0.0097	<0.0005	<0.0005	0.0045	<0.0020	0.0111	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	0.0186

Table 4: Groundwater Analytical Results
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

Comments

#1 Also known as tetrachloroethene
#2 NHMRC (2011) - Health. Multiplied by a factor of x10
#3 NHMRC (2011) - Health (value for PFOS+PFHxS also applied to PFOS). Multiplied by a factor of x10
#4 Value for shallow (2-4 m bgl) sand aquifer adopted for initial screening.
#5 pH>6.5
#6 ANZG (2018). For pH >6.5
#7 ANZG (2018). The more conservative value (Arsenic AsV) out of the available arsenic species was adopted for initial screening purposes.
#8 ANZG (2018). Adjust DGVs for site-specific hardness using the hardness-dependent algorithm in Warne et al. (2018)
#9 ANZG (2018). The more conservative value (Chromium CrVI) out of the available chromium species was adopted for initial screening purposes.
#10 ANZG (2018). Unknown species protection level
#11 ANZG (2018)
#12 ANZG (2018). Higher species protection level adopted as recommended
#13 Derived by NZ NIWA (2013) using ANZECC (2000) methodology. ANZECC (2000) value was withdrawn due to calculation errors.
#14 CRWB (2019). Lowest of values for gasoline (C4-C12) and diesel (C8-C21) range hydrocarbons.
#15 CRWB (2019). Value for diesel (C8-C21) mixture.
#16 CRWB (2019). Value for diesel (C8-C21) mixture. No value derived for TPH >C21 as not considered soluble; diesel value used for screening.
#17 PFAS National Environmental Management Plan (HEPA 2020). Higher species protection level adopted as recommended
#18 ANZECC 2000 - Primary Industries - Water Quality for Irrigation and General Water Use
#19 ANZECC/ARMCANZ 2000: Primary Industries - Water Quality for Irrigation and General Water Use - STV (Short Term Trigger Values)
#20 NHMRC (Draft 2024) - Health (value for PFOA). Multiplied by a factor of x10
#21 NHMRC (Draft 2024) - Health (value for PFOS). Multiplied by a factor of x10
#22 NHMRC (Draft 2024) - Health (value for PFHxS). Multiplied by a factor of x10
#23 NHMRC (Draft 2024) - Health (value for PFBS). Multiplied by a factor of x10
* Higher QAQC concentration has been used

Table 5: Groundwater Acidification Indicators
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

					Physical Parameters			Metals													
					Electrical Conductivity	Total Dissolved Solids	pH (Lab)	Aluminium	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (filtered)	Cobalt (filtered)	Copper (filtered)	Iron	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Selenium (filtered)	Zinc (filtered)
					µS/cm	mg/L	pH Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL					1	5	0.01	0.01	0.01	0.001	0.0001	0.001	0.001	0.001	0.01	0.01	0.001	0.001	0.0001	0.001	0.001	0.005
DER (2015)[#1] Indicators of Groundwater Acidification							<5		1												
DER (2015)[#1] Minimum Trigger/Action Levels for Dewatering Effluent Discharge							6.5-8.5[#3]	0.15[#3]							1[#3]						
Default Trigger Vaules for Physical and Chemical Stressors - South-western Australia (Wetlands)							7-8.5														
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																	
GBH01	GHB01	29/11/2024	Normal	EP2417960	-	-	-	0.07	<0.01	0.001	<0.0001	<0.001	<0.001	0.002	0.16	<0.05	<0.001	0.002	<0.0001	<0.001	<0.01	<0.005
	GBH01	15/01/2025	Normal	EP2500657	1,050	611	7.99	0.01	<0.01	0.002	<0.0001	<0.001	<0.001	<0.001	<0.05	<0.05	<0.001	0.004	<0.0001	<0.001	<0.01	<0.005
GBH03	GHB03	28/11/2024	Normal	EP2417960	-	-	-	2.57	<0.01	0.001	<0.0001	<0.001	<0.001	<0.001	3.81	<0.05	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.005
	GBH03	15/01/2025	Normal	EP2500657	987	552	7.9	0.07	<0.01	0.002	<0.0001	<0.001	<0.001	<0.001	0.06	<0.05	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.005
GBH04	GBH04	16/01/2025	Normal	EP2500657	1,530	939	7.8	1.61	<0.01	0.003	<0.0001	<0.001	0.003	<0.001	1.78	<0.05	<0.001	0.538	<0.0001	0.004	<0.01	<0.005
GBH05	GHB05	28/11/2024	Normal	EP2417960	-	-	-	6.31	0.1	<0.001	<0.0001	<0.001	<0.001	<0.001	2.93	0.46	<0.001	0.018	<0.0001	0.001	<0.01	<0.005
	GBH05	16/01/2025	Normal	EP2500657	245	245	6.42	8.19	0.05	<0.001	<0.0001	<0.001	<0.001	<0.001	2.54	0.29	<0.001	0.014	<0.0001	0.001	<0.01	<0.005
GBH06	GBH06	16/01/2025	Normal	EP2500657	198	167	6.37	8.87	0.08	0.001	<0.0001	<0.001	<0.001	<0.001	3.9	1.47	<0.001	0.029	<0.0001	0.001	<0.01	4.15
GBH07	GHB07	29/11/2024	Normal	EP2417960	-	-	-	3.55	0.03	<0.001	<0.0001	<0.001	0.001	<0.001	10.2	1.42	<0.001	0.084	<0.0001	<0.001	<0.01	<0.005
	GBH07	16/01/2025	Normal	EP2500657	498	302	7.25	0.48	0.03	<0.001	<0.0001	<0.001	<0.001	<0.001	1.21	0.11	<0.001	0.031	<0.0001	<0.001	<0.01	<0.005
GBH08	GHB08	28/11/2024	Normal	EP2417960	-	-	-	1.16	0.16	<0.001	<0.0001	<0.001	<0.001	<0.001	2.21	1.61	<0.001	0.063	<0.0001	0.001	<0.01	<0.005
	GBH08	16/01/2025	Normal	EP2500657	213	152	6.53	0.91	0.18	<0.001	<0.0001	<0.001	<0.001	<0.001	1.91	1.69	<0.001	0.069	<0.0001	0.001	<0.01	0.005
MW01	MW01	29/11/2024	Normal	EP2417960	-	-	-	0.05	<0.01	0.001	<0.0001	<0.001	<0.001	<0.001	0.1	<0.05	<0.001	0.004	<0.0001	<0.001	<0.01	<0.005
	MW01	15/01/2025	Normal	EP2500657	911	517	7.97	0.02	<0.01	0.001	<0.0001	<0.001	<0.001	<0.001	<0.05	<0.05	<0.001	<0.001	<0.0001	0.001	<0.01	0.005
MW02	MW02	29/11/2024	Normal	EP2417960	-	-	-	0.08	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.001	0.16	<0.05	<0.001	0.027	<0.0001	<0.001	<0.01	<0.005
	MW02	15/01/2025	Normal	EP2500657	1,090	640	7.85	0.06	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.001	0.1	<0.05	<0.001	0.005	<0.0001	<0.001	<0.01	<0.005

Notes
#1 Department of Environmental Regulation (2015) Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes
#2 Adapted from Swedish EPA, 2002
#3 Discharge to wetland or waterway.

Table 5: Groundwater Acidification Indicators
Detailed Site Investigation
Anketell Road, Kwinana
Main Roads Western Australia
P21560

					Inorganics									Major Ions											Alkalinity				
					Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Total Oxidised Nitrogen (as N)	Total Kjeldahl Nitrogen	Total Nitrogen (as N)	Reactive Phosphorus (as P)	Phosphorus (as P)	Sulfide (as S)	Calcium (filtered)	Chloride	Magnesium (filtered)	Potassium (filtered)	Sulfate (as SO4) (filtered)	Alkalinity/sulfide ratio	CL/SO4 ratio	Sodium (filtered)	Anions Total	Cations Total	Ionic Balance	Bicarbonate Alkalinity (as CaCO3)	Carbonate Alkalinity (as CaCO3)	Hydroxide Alkalinity (as CaCO3)	Total Alkalinity (as CaCO3)	Acidity (as CaCO3)
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	-	-	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
EQL					0.01	0.01	0.01	0.01	0.1	0.1	10	0.01	0.1	0.5	1	0.5	0.5	1	-	-	0.5	0.01	0.01	0.01	1	1	1	1	1
DER (2015)[#1] Indicators of Groundwater Acidification																			<5[#2]	<2									
DER (2015)[#1] Minimum Trigger/Action Levels for Dewatering Effluent Discharge																													<40
Default Trigger Vaules for Physical and Chemical Stressors - South-western Australia (Wetlands)					0.04			0.1		1.5	0.03	0.06																	
Location Code	**Field ID**	**Date**	**Sample Type**	**Lab Report Number**																									
GBH01	GHB01	29/11/2024	Normal	EP2417960	0.17	2.51	<0.01	2.51	1	3.5	0.08	0.14	-	83	98	8	7	54	6.46	1.81	124	10.9	10.4	2.3	349	<1	<1	349	14
	GBH01	15/01/2025	Normal	EP2500657	0.46	2.04	0.01	2.05	0.8	2.8	0.02	0.04	<0.1	74	130	8	8	65	5.35	2.00	145	12	10.9	4.86	348	<1	<1	348	19
GBH03	GHB03	28/11/2024	Normal	EP2417960	<0.01	2.6	<0.01	2.6	0.8	3.4	0.03	0.16	-	96	105	10	4	44	7.09	2.39	100	10.1	10.1	0.23	312	<1	<1	312	18
	GBH03	15/01/2025	Normal	EP2500657	<0.01	2.67	<0.01	2.67	0.5	3.2	0.02	0.02	<0.1	97	145	10	4	43	7.09	3.37	97	11.1	9.98	5.2	305	<1	<1	305	21
GBH04	GBH04	16/01/2025	Normal	EP2500657	6.41	0.19	0.02	0.21	6.9	7.1	<0.01	0.06	<0.1	104	197	24	22	191	2.15	1.03	181	17.7	15.6	6.38	410	<1	<1	410	37
GBH05	GHB05	28/11/2024	Normal	EP2417960	0.02	0.14	<0.01	0.14	0.5	0.6	<0.01	0.06	-	17	50	3	2	36	0.19	1.39	25	2.3	2.23	1.46	7	<1	<1	7	-
	GBH05	16/01/2025	Normal	EP2500657	0.02	1.42	0.02	1.44	0.6	2	<0.01	0.06	<0.1	14	42	3	3	27	0.52	1.56	29	2.13	2.28	3.49	14	<1	<1	14	22
GBH06	GBH06	16/01/2025	Normal	EP2500657	0.12	0.06	<0.01	0.06	0.8	0.9	<0.01	0.11	<0.1	5	25	11	4	33	0.85	0.76	24	1.96	2.3	8.09	28	<1	<1	28	26
GBH07	GHB07	29/11/2024	Normal	EP2417960	0.15	3.45	0.04	3.49	1.4	4.9	<0.01	0.05	-	34	40	10	11	44	1.82	0.91	22	3.64	3.76	1.55	80	<1	<1	80	20
	GBH07	16/01/2025	Normal	EP2500657	0.03	5.18	<0.01	5.18	0.8	6	<0.01	<0.01	<0.1	43	75	16	8	64	1.39	1.17	29	5.23	4.93	2.93	89	<1	<1	89	20
GBH08	GHB08	28/11/2024	Normal	EP2417960	0.05	1.17	0.02	1.19	0.7	1.9	<0.01	0.04	-	13	16	9	4	34	1.24	0.47	12	2	2.01	0.38	42	<1	<1	42	25
	GBH08	16/01/2025	Normal	EP2500657	0.09	1.31	<0.01	1.31	0.5	1.8	<0.01	0.02	<0.1	12	17	10	4	64	0.59	0.27	12	2.57	2.16	8.72	38	<1	<1	38	40
MW01	MW01	29/11/2024	Normal	EP2417960	0.06	7.25	0.2	7.45	0.8	8.2	0.02	0.02	-	103	108	18	5	54	5.28	2.00	90	9.86	10.7	3.89	285	<1	<1	285	10
	MW01	15/01/2025	Normal	EP2500657	<0.01	8.62	<0.01	8.62	0.8	9.4	0.01	0.02	<0.1	105	111	18	4	43	6.65	2.58	62	9.74	9.52	1.14	286	<1	<1	286	16
MW02	MW02	29/11/2024	Normal	EP2417960	<0.01	3.07	0.02	3.09	0.6	3.7	0.02	0.07	-	110	93	11	5	56	7.27	1.66	128	11.9	12.1	0.7	407	<1	<1	407	19
	MW02	15/01/2025	Normal	EP2500657	<0.01	3.86	<0.01	3.86	0.5	4.4	<0.01	0.03	<0.1	107	120	11	5	53	7.70	2.26	124	12.6	11.8	3.58	408	<1	<1	408	33

Notes
#1 Department of Environmental Regulation (2015) Treatment and Management of Soil and Water in Acid Sul
#2 Adapted from Swedish EPA, 2002
#3 Discharge to wetland or waterway.

Appendix A: Environmental Licence L8974/2016/2 Information

Government of Western Australia
Department of Water and Environmental Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Eclipse Soils Pty Ltd

Licence: L8974/2016/1

Registered office:	The Miramar Building Level 2, 40 Subiaco Square Road SUBIACO WA 6008
ACN:	131 802 661
Premises address:	Abercrombie Road Resource Recovery Centre Lot 115 on Plan 48295 (Volume 2602, Folio 976) and Lot 2 on Plan 29392 (Volume 2219, Folio 775) Abercrombie Road POSTANS WA 6167 As depicted in Schedule 1
Grant date:	28 March 2017
Commencement date:	30 March 2017
Expiry date:	Monday, 27 July 2020
Date of Amendment:	13 May 2019

Decision

Based on the assessment detailed in this document the Department of Water and Environmental Regulation's (DWER) Delegated Officer has granted this licence amendment. The Delegated Officer considers that in reaching this decision, he has taken into account all relevant considerations.

Decision Document authorised by: [redacted]

Senior Manager Waste Industries
Regulatory Services
Delegated Officer - under section 20 of the
Environmental Protection Act 1986

Contents

Decision Document 1
Contents 2
1 Purpose of this Document 2
2 Administrative summary 3
3 Executive summary of proposal and assessment 4
4 Location and siting 6
5 Decision table 10
6 Advertisement and consultation table 19
7 Risk Assessment 21
Appendix A: Key Documents and References 22
Appendix B – Risk assessment 24
Appendix C – Fitness and Competence 33
Appendix D – Premises Map 36
Appendix E – Comments re initial draft licence 37
Appendix F – Draft Licence comments 42
Appendix G – Appeal determination 47
Appendix H – May 2019 Licence amendment 49

1 Purpose of this Document

This decision document explains how DWER has assessed and determined the application and provides a record of DWER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DWER's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☐ Licence amendment ☒ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)**	**Assessed design capacity**
	61A	200,000 tonnes per annual period
	67A	50,000 tonnes per annual period
Application verified Application fee paid	Date: 19 March 2019 Date: 19 March 2019	
Works Approval has been complied with Compliance Certificate received	Yes☐ No☐ N/A☒ Yes☐ No☐ N/A☒	
Commercial-in-confidence claim	Yes☒ No☐ In respect of the original Licence application, the occupier requested a commercial-in-confidence claim for the Quality Control Plan, Bioremediation Management Plan, Acid Sulfate Soils Management Plan and the Water Retentive Landscape Shaping Soil Production Protocol which have been marked with 'Confidential do not copy' and 'Commercial in Confidence'.	
Commercial-in-confidence claim outcome	Only information related to the management of emissions and discharges has been disclosed in this decision document.	
Is the proposal a Major Resource Project?	Yes☐ No☒	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☐ No☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes☐ No☒	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☒ No☐		

Environmental Protection (Kwinana) (Atmospheric Wastes) Policy 1999 and *Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992*
Is the Premises subject to any EPP requirements? Yes☒ No☐ *Environmental Protection (Kwinana) (Atmospheric Wastes) Policy 1999* (Kwinana EPP) covers the entire premises. • The objective of the Kwinana EPP is to protect the 'beneficial uses' of the environment. • The Kwinana EPP and associated regulations outline general dust provisions relating to ambient concentrations of total suspended particulates (TSP); • *Environmental Protection Peel Inlet - Harvey Estuary Policy 1992* (Peel Inlet EPP) covers Lot 2 on Plan 29392 (Volume 2219, Folio 775) Abercrombie Road; • outlines environmental quality objectives for the Estuary which if achieved will rehabilitate the Estuary and protect the Estuary from further degradation; • outlines the means by which the environmental quality objectives for the Estuary are to be achieved and maintained; The Peel Inlet EPP sets water quality objectives for the entire Peel Inlet and Harvey Estuary. Subsidiary management documents include on-ground nutrient targets based on modelling.

3 Executive summary of proposal and assessment

Eclipse Soils Pty Ltd (Eclipse Soils) operates the Abercrombie Road Resource Recovery Centre (ARRRC) located on Lot 115 and Lot 2 Abercrombie Road in Postans. The combined two lots cover an approximate area of 42 hectares. This premises was previously operated by Eclipse Resources Pty Ltd under licence L7766/2001/5 for categories 61A, 63 and 67A. That licence expired on 27 April 2015. The previous instruments issued for the Premises since April 2002 are:

Instrument log			
Instrument	**Granted**	**Licence Holder**	**Description**
L7766/2001/1	17/04/2002	Eclipse Resources Pty Ltd	New licence application
L7766/2001/2	05/05/2003	Eclipse Resources Pty Ltd	Licence re-issue
L7766/2001/3	28/04/2004	Eclipse Resources Pty Ltd	Licence re-issue
L7766/2001/4	28/04/2005	Eclipse Resources Pty Ltd	Licence re-issue
W4424/2008/1	01/05/2008	Eclipse Resources Pty Ltd	Works Approval
L7766/2001/5	28/04/2010	Eclipse Resources Pty Ltd	Licence re-issue
L7766/2001/5	07/07/2011	Eclipse Resources Pty Ltd	Licence amendment
L7766/2001/5	11/08/2011	Eclipse Resources Pty Ltd	Licence amendment
L8974/2016/1	28/03/2017	Eclipse Soils Pty Ltd	New licence
L8974/2016/1	13/11/2018	Eclipse Soils Pty Ltd	Appeal amendment
L8974/2016/1	13/05/2019	Eclipse Soils Pty Ltd	Licence amendment

Based on the assessment detailed in this document the Delegated Officer determined to grant a licence subject to regulatory controls imposed as licence conditions. The premises is licensed as a category 61A (solid waste facility) and category 67A (compost manufacturing and soil blending) facility as defined in Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations). The licence does not authorise any infilling of waste.

Eclipse Soils accept the following waste materials for further processing, treatment and/or storage:

- clean fill for soil blending and offsite sales,
- green waste for processing into composted products,
- contaminated soils (including hydrocarbon, acid sulfate soils (ASS) and certain pesticide contaminated soils) for treatment (bioremediation) and soil blending; and
- acid sulfate soils for treatment and soil blending.

No manures or liquid wastes are accepted onsite. No filling of land will occur.

Works approval W4424/2008/1 authorised the construction of the two bioremediation treatment pads and lined leachate ponds that exist on site. Works authorised under W4424/2008/1 were completed on 20 October 2009.

The premises also mines and sells limestone and sand however these activities are not regulated under Part V of the *Environmental Protection Act 1986* (EP Act). Screening of this excavated material is not proposed under this licence.

The potential emissions arising from the premises' activities include:

- dust and noise emissions from vehicular movement and machinery use on-site;
- leaching of nutrients and other contaminants to the soil subsurface and underlying groundwater from composting and soil treatment activities; and
- odour emissions from composting and soil treatment activities.

There are no direct (point source) emissions or discharges to air, surface water or groundwater associated with the proposed activities.

Suitability of treated materials for end-use has not been assessed under this decision document. The acceptance and re-use of treated wastes on another premises may be subject to the licensing provisions in Part V of the EP Act and landfill levy obligations.

2018 DWER initiated Amendment following Appeal determination (Appeal 13 of 2017)
In 2018 an amendment to the licence was undertaken to address the determination of the appeal by Eclipse Soils Pty Ltd, against the original licence conditions. The appeal (Office of the Appeals Convenor, Appeal 13 of 2017) was determined by the Minister for Environment on 21 May 2018. The Minister allowed the appeal in part. A summary of the grounds of appeal and DWER's amendments to reflect the appeal determination are shown in Appendix G of this document.

Key documents considered or reviewed as part of the assessment are documented in Appendix A.
Eclipse Soils also requested the former Department, DER, to consider documentation provided in support of previous works approval and licence applications. The Delegated Officer considered these previous documents to the extent that they applied to current operations and not in regard to landfilling activities.

DWER also gave consideration to the Appeal Convenor's advice in the Report to the Minister for Environment, Appeal Number 13 of 2017, March 2018, as per the Minister's request.

The final amendment to the licence following appeal determination was granted on 20 November 2018.

2019 Amendments to Licence
Amendments relate to the proposed increase in throughput of solid waste material and changes to waste acceptance criteria. Further details and DWER's risk assessment are outlined in Appendix H of this Decision Document.

Applicable Regulations, Standards and Guidelines
The overarching legislative framework of this assessment is the *Environmental Protection Act 1986* and *Environmental Protection Regulations 1987*. The Department's Guidance Statements which inform the assessment in line with this legislation are as follows:

- *Guidance Statement: Regulatory Principles (July 2015);*
- *Guidance Statement: Licence and works approvals process (September 2015);*
- *Guidance Statement: Setting Conditions (October 2015);*
- *Guidance Statement: Land Use Planning (February 2017);*
- *Guidance Statement: Licence duration (August 2016)*;
- *Guidance Statement: Environmental Siting (November 2016);*
- *Guidance Statement: Decision Making (February 2017); and*
- *Guidance Statement: Risk Assessments (February 2017).*

Contaminated Sites
The Site was first classified under the *Contaminated Sites Act 2003* (the CS Act) on 16 July 2010. The Site is classified as 'Possibly contaminated - investigation required' under the CS Act. This classification is a result of previously landfilled materials on the premises including asbestos. Excavation or disturbance of soils is prohibited.

4 Location and siting

4.1 Siting context and planning approval

The land is zoned 'Rural B' under the City of Kwinana Town Planning Scheme No. 2 and 'Rural' under the Metropolitan Region Scheme. The premises has been granted planning approval until 27 July 2020. The licence duration is aligned with the planning approval expiry date.

The planning approval is for an extractive industry operation however it includes conditions specific to all activities occurring onsite. The City of Kwinana confirmed in correspondence to the former Department of Environment Regulation (DER), now DWER, that the use of the premises for "soil bioremediation, compost manufacturing and soil blending is approved" under the planning approval (see Table in Section 7).

The approval restricts operational hours to 06:00 to 18:00 Monday to Saturday with trucks not authorised to leave the quarry until 06:30.

4.2 Residential and sensitive receptors

An Agricultural Research Station owned and operated by the Department of Agriculture and Food WA is located south of Lot 115 and includes a caretaker's residence. This residence is located approximately 375m from the southern boundary of Lot 115, 600m from the western boundary of Lot 2 and is the closest neighbour to the Abercrombie Road Resource Recovery Centre (ARRRC). The closest residential area is that of Orelia, located approximately 750m from the southernmost extent of Eclipse's ARRRC.

4.3 Soil Type

The Delegated Officer has reviewed surface geology information and publicly available surface geology maps for the site as presented in Davidson, W.A. (1995) ('Hydrogeology and groundwater resources of the Perth region, Western Australia', Western Australia Geological Survey, Bulletin 142, Davidson, W.A. (1995)) and concludes that the site is mapped in the Tamala limestone formation. This is consistent with onsite activities relating to mining limestone and sand.

The Tamala limestone formation extends along the coastal strip of the Perth region and consists of a creamy-white to yellow, or light-grey, calcareous aeolianite. It contains various proportions of quartz sand, fine- to medium-grained shell fragments, and minor clayey lenses. The quartz sand varies from fine to coarse-grained, but is predominantly medium grained, moderately sorted, sub-angular to rounded, frosted, and commonly stained with limonite (Davidson, 1995).

The formation is reported to contain numerous solution channels and cavities, particularly in the zone of water table fluctuation, and in some areas exhibits karst structures (McPherson and A. Jones, 2005 Geosciences Australia). Its upper surface is exposed and leached to the extent that the upper part of the unit comprises unconsolidated sand. Depending on the location, this unit unconformably overlies the Leederville Formation, Osborne Formation or the Bassendean Sand, and is known to exhibit a maximum known thickness of 110 m. Along the coastal margin it is unconformably overlain by the Becher Sand or the Safety Bay Sand (Davidson, 1995).

4.5 Groundwater and surface water resources

The nearest surface water body is an unnamed lake approximately 785m north/northwest and the Spectacles wetland located approximated 1.8km east of site. No surface water bodies or drainage lines exist on site due to the permeable nature of the soils and limestone.

As identified through DWER's Perth Groundwater Atlas (PGA), groundwater below the premises ranges from 11.5 to 20.5 metres below ground level (mbgl) in Lot 115 and from 20.5 to 26.5 mbgl on Lot 2, with these differences attributed to the varying contours of the premises topography. PGA also states that groundwater is considered marginal (total dissolved solids between 500 – 1000 mg/L), has a low risk of iron staining and has no known risk of Acid Sulfate Soils (ASS). The PGA also identified the surface geology type as Tamala Limestone: predominantly calcarenite.

Water is extracted from two existing high production bores used for dust suppression purposes. The occupier has a groundwater licence to extract 120,000kL per annum.

Groundwater data required from monitoring under previous licences is inconclusive to determine if site activities have impacted on groundwater quality. A discussion of the groundwater data is provided in Appendix B. The current licence provides for additional groundwater monitoring to be undertaken to review potential impacts to groundwater quality from on-site activities. DWER is awaiting the results in order to review the groundwater quality at the premises.

4.5 Sensitive ecosystems

A Threatened Ecological Community (TEC) buffer area exists to the north of the ARRRC. The buffer is in relation to 1.79ha of endangered *Melaleuca huegeli – Melaleuca acerosa* shrublands which is located 190m north of the Premises boundary. A large portion of Lot 115 and part of Lot 2 are located within the buffer area to this TEC. TEC buffers are important to assist in preventing impacts from weeds or dust emissions and can be susceptible to impacts when there are groundwater and surface water discharges that are within the vicinity of the buffer area.

4.6 Meteorology

Rainfall and temperature

The closest Bureau of Meteorology (BoM) station for the site is the Medina Research Centre (Site number: 009194) approximately 600m from the site. The mean rainfall and maximum temperature for this BoM station is presented in Figure 1 below (Mean rainfall (mm) for years 1983 to 2016 and mean maximum temperature (°C) for years 1983 to 2016). The region exhibits warm to hot temperatures between December to March with rainfall predominantly over May to September.

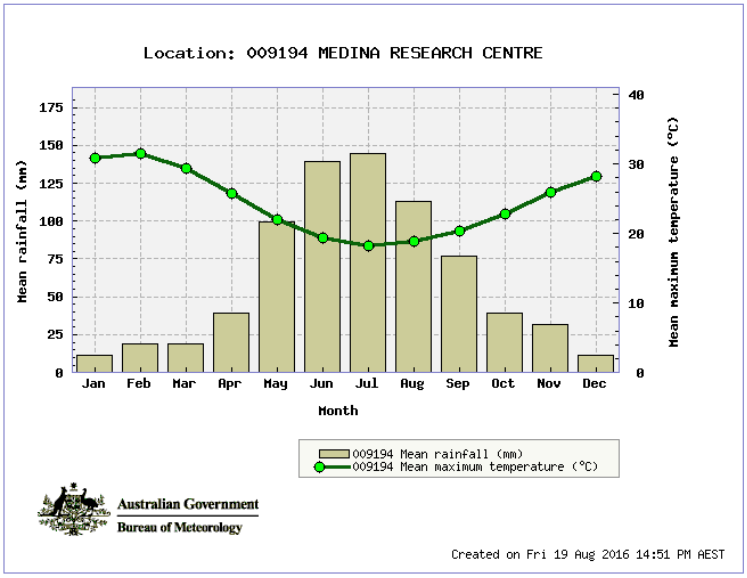


Figure 1: Mean temperature and rainfall – Medina Research Centre.

Wind direction and strength

Annual wind roses for the Medina Research Centre provide an indication of likely wind direction and strength for the site. The annual average 9am and 3pm wind speed vs direction plots are presented in Figure 2. 9am observations indicate a predominant easterly direction while the 3pm observations indicate a predominant south-westerly direction.

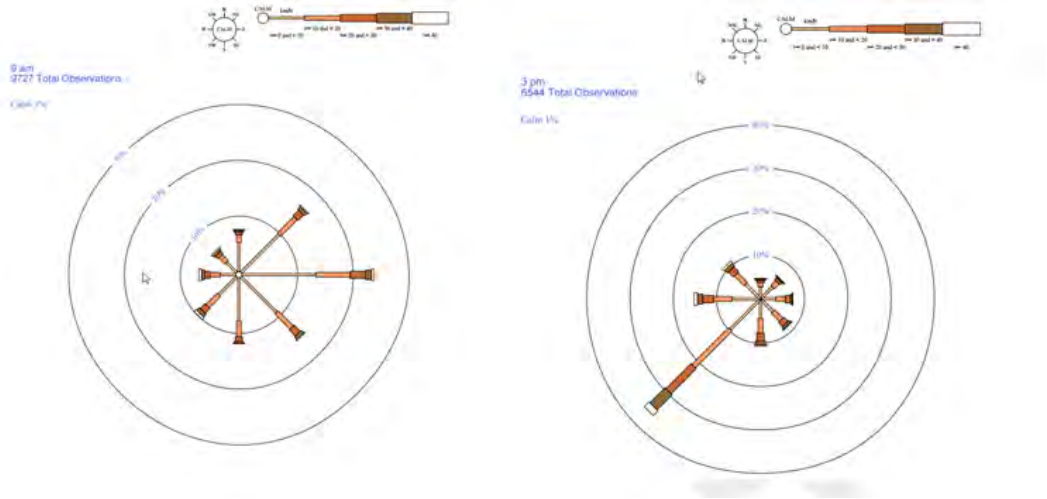


Figure 2: Annual average 9am and 3pm wind speed vs direction plots – Medina Research Centre.

5 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and the Department's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

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DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Occupancy	N/A	Under the *Environmental Protection Act 1986* (EP Act), licences can only be granted to the occupier of the premises. The Delegated Officer has received a letter from the landowner to confirm that Eclipse Soils has authorisation to occupy the premises for activities related to prescribed premises category 61A and 67A activities. It is noted that the landowner is a company with the same Directors as Eclipse Soils. The Delegated Officer is satisfied that Eclipse Soils is the occupier of the premises.	Application supporting documentation
Premises operation	L1.2.1 –L1.2.8	Refer to Appendix B	Application supporting documentation
Fugitive emissions (dust)	L1.2.5 - L1.2.8	Refer to Appendix B	Application supporting documentation Office of the Appeals Convenor, Report to the Minister for Environment, Appeal Number 13 of 2017
Fugitive emissions to groundwater	L1.2.4, L2.4.1	Refer to Appendix B	Application supporting documentation

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Odour	L1.2.3 (Table 1.2.2)	Refer to Appendix B	Application supporting documentation
Noise	N/A	Refer to Appendix B	*Environmental Protection (Noise) Regulations 1997* (EP Noise Regulations)
Monitoring general	L2.1.1 and L2.1.2	Condition L2.1.1 has been included on the licence to specify the methodology that is required to be undertaken for monitoring groundwater. These methods assist in ensuring reliability and accuracy of results. Condition L2.1.2 has been included on the licence to specify the minimum period of time authorised between sampling rounds and has been included to allow a more accurate representation of seasonal data obtained throughout the year.	N/A
Monitoring of inputs and outputs	L2.2.1	Condition L1.2.1 specifies the types and volumes of materials authorised to be accepted at the premises. To allow DWER to regulate the volume of wastes in compliance with this condition, condition L2.2.1 (and Table 2.2.1) has been included on the licence to monitor and record the inputs and outputs of the premises. This condition also assists in assessing that the wastes accepted and processed at the site are at a throughput that can be sufficiently managed by the premises infrastructure and controls which have been considered as part of this risk assessment.	N/A
Process monitoring	L2.3.1	The occupier currently undertakes weekly monitoring of temperature in the compost stockpiles (outside of pasteurisation stage). Condition 2.3.1 has been included on the licence to ensure a minimum level of process monitoring and control is maintained and to reflect the monitoring proposed by the occupier, as well as requiring additional monitoring that is deemed as appropriate by the Delegated Officer and relevant to the onsite composting process. This condition also assists in demonstrating that the onsite	Australian Standards (AS) 4454:2012 Composts, Soil Conditioners and Mulches

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		processes have resulted in a viable compost, mulch or blended soil product that meets relevant Australian Standards.	AS 4419 – 2003 Soils for landscaping and garden use
Ambient quality monitoring	L2.4.1	As per the risk assessment for stormwater becoming contaminated with leachate in 'General conditions' in Appendix B, there is a high risk that groundwater can become contaminated from premises operations. The occupier has installed four groundwater monitoring bores to monitor water quality from the superficial aquifer. The background bore (upstream) was drilled to the north of the former quarry. Bore 2 and 3 were drilled down-gradient to the south of the former quarry. The location of these bores is depicted on the map in Schedule 1 of the licence. To assess the impacts of premises operations on the groundwater quality, condition (and table) 2.4.1 has been included on the licence to require the groundwater bores to be monitored on a quarterly basis for the following parameters: • Standing water level; • pH; • Electrical conductivity; • Arsenic; • Cadmium; • Chromium; • Copper; • Mercury; • Ammonium nitrogen; • Lead; • Manganese; • Nickel; • Zinc;	Application supporting documentation Office of the Appeals Convenor, Report to the Minister for Environment, Appeal Number 13 of 2017

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Ambient quality monitoring continued		• Potassium; • Selenium; • Chloride; • Sulphate; • Total acidity; • Total alkalinity; • Total aluminium; • Total iron; • Total nitrogen (TN); • Total phosphorus (TP); • Total Dissolved Solids (TDS); • Organochlorines; • Organophosphates; • BTEX (benzene, toluene, ethylbenzene, xylene); • Polycyclic aromatic hydrocarbons (PAHs); • Polychlorinated biphenyls (PCBs); and • Total petroleum hydrocarbons (TPH). Historical groundwater data is inconclusive to determine if site operations are impacting on the groundwater and additional data (larger data set) is required to demonstrate whether the premises is causing any impacts (discussed further in Appendix B). The Delegated Officer considers that the licence condition for quarterly groundwater monitoring is required to provide a more conclusive data set for monitoring the potential impact of emissions on ambient groundwater quality given the high risk of impacts on the receiving environment.	
Former landfill management	L1.2.3, L1.2.4 and L1.2.8	The occupier has requested to use the former landfill area as part of the site operations. A pad of crushed limestone has been constructed within this area however the dimensions of this pad, including thickness of limestone and permeability, have not been provided.	Office of the Appeals Convenor, Report to the Minister for

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		DER Officers visited the Premises on 27 March 2017 to determine the extent of the limestone pad within this area. The pad was not able to be visually verified due to the quantities of waste being stored in the area. In the absence of information relating to the extent and specification of the limestone pad the Delegated Officer has determined that the former landfill area has not been demonstrated to have the infrastructure required to mitigate risks to groundwater from the storage and processing of wastes that are authorised to be received and processed at the Premises, with the exception of Clean Fill. As a result the Delegated Officer considers it appropriate to only authorise the storage of clean fill in the north-eastern portion of the Premises given the high risk of leachate to the receiving environment. This is reflected in Tables 1.2.2 and 1.2.3 for conditions 1.2.3 and 1.2.4, respectively. Should Eclipse be able to demonstrate that the infrastructure in this area is sufficient to mitigate risks to groundwater if other wastes authiorised to be accepted are handled in this area, they may submit a licence amendment application for DWER to consider. This area has been delineated by GPS coordinates. These GPS coordinates were determined by Department Officers based on advice from Eclipse staff on site on 27 March 2017 who identified to (the then) DER Officers the required extent of this waste storage area and limestone hardstand. Condition 1.2.8 prohibits the occupier from undertaking any activities that may disturb the former landfill area. As discussed in the 'Fugitive emissions' section of Appendix B, asbestos has previously been filled onsite and the requirement to not disturb the former fill area assists in reducing the risk of asbestos fibres being released. These conditions are deemed suitable to manage ongoing activities at the premises, giving consideration to the former utilisation of part of the premises for historic landfilling activities.	Environment, Appeal Number 13 of 2017

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Improvements	L3.1.1 (IC1 – IC3)	Condition L3.1.1 (IC1 and IC2) has been included to require the occupier to undertake permeability testing of the green waste and ASS/PASS storage and processing pads, to meet no less than 1 x 10^{-8} m/s hydraulic conductivity. This condition also requires the occupier to provide a list of actions to bring the infrastructure up to this permeability requirement and a timeframe for completion, should it not meet the permeability criteria. The Delegated Officer's risk-based assessment for emissions of leachate identified a high-risk to the receiving environment as specified in Appendix B 'Emission Description (Leachate)'. Based on the outcome of the risk assessment, the Delegated Officer considered it necessary for composting and ASS/PASS pads to meet a hydraulic conductivity of less than 1 x 10^{-8} m/s. The requirement to meet the permeability criteria was appealed by the Licence holder. In its advice to the Office of the Appeals Convenor, DWER stated that 'given the inconclusive nature of groundwater monitoring results with regard to the impact the activities may have had on groundwater quality, the Department considers it reasonable to allow a period of 12 months increased groundwater monitoring to verify whether the Department's high risk rating for leachate emissions to groundwater is accurate, in advance of requiring any improvements in the infrastructure to be undertaken. In the event that the increased groundwater monitoring program demonstrates that the limestone hardstands are of a sufficient permeability to mitigate impacts to groundwater, then the requirement to upgrade the hardstands to meet a permeability of 1 x 10^{-8} m/s can be removed. The Minister accepted DWER's advice that if additional groundwater monitoring demonstrates that the existing limestone pads used for green waste and ASS/PASS are of sufficient permeability to mitigate impacts to groundwater, improvement requirements IC1 and IC2 may no longer be required to be met within the stipulated timeframes. Specifically, the Minister considered it appropriate for quarterly monitoring to be required for at least the first 12 months following the decision, and should those results confirm the original risk assessment then it is open to DWER to remove the improvement requirements.	Application supporting documentation Office of the Appeals Convenor, Report to the Minister for Environment, Appeal Number 13 of 2017

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Given this advice, DWER has amended improvements IC1 and IC2 in Table 3.1.1, to allow for additional time to meet the 'Date of Completion'. An extension to 2 years from the date of the amendment for completion, will allow the Licence Holder to undertake the required groundwater monitoring, review the results and to provide these results to DWER for review. Should the groundwater monitoring results demonstrate that the limestone hardstands are of sufficient permeability to mitigate impacts to groundwater, then DWER will undertake an amendment of the licence to remove these hardstand improvement requirements. Should the groundwater monitoring results demonstrate that the limestone hardstands are not of sufficient permeability to mitigate impacts to groundwater, then the requirements of IC1 and IC2 will remain. Given the high risk of leachate emissions to the receiving environment, the Delegated Officer requires the occupier to demonstrate that the infrastructure meets this requirement to protect the receiving environment. A former improvement condition (IC3) was also included on the original licence to require the occupier to install and maintain suitable fencing at the premises to delineate the extent of the authorised prescribed area. On review of the Appeal DWER agreed to remove this condition, as the whole of the property is already fenced. Condition 3.1.1 (IC3) has been included in the licence as a result of Department officers visiting the Premises on 27 March 2017 and identifying that green waste, mulch and other waste was being stored in the former designated 'Clean Fill Storage Area'. This condition requires Eclipse to remove all waste other than Clean Fill from this area within 3 months of the date of issue of the licence amendment. Should Eclipse be able to demonstrate that the infrastructure in this area is suitable for activities involving other wastes to take place, Eclipse may seek to submit a licence amendment and evidence on this issue to DWER.	

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Information	L4.1.1 to 4.1.3, L4.2.1, 4.2.2 and L4.3.1	Condition 4.1.1 sets out the requirements for any records that are required under this licence, such as ensuring they are legible and retained for 6 years which assists DWER in regulating the conditions of this licence. Condition 4.1.2 requires a complaints management system to be implemented where the occupier can internally address any issues that arise from premises operations. DWER will review these complaints as reported in the Annual Environmental Report (AER) and can consider the requirement for reassessment of any regulatory controls to address the complaints. Condition 4.1.3 requires the occupier to maintain a register of all ASS or PASS received at the site and the validation and testing results. This condition assists in confirming that all ASS or PASS has been treated appropriately. Condition 4.2.1 requires the occupier to undertake an audit of their operations against the conditions of the licence and to report on this compliance in a Compliance Report. This condition assists DWER in regulating the occupier's compliance with licence conditions and allows an opportunity for DWER to review the occupier's environmental performance. Condition 4.2.2 requires the occupier to submit an AER. The AER is required to include summary of the complaints required under condition 4.1.2. The AER also requires the results for the monitoring of inputs/outputs, groundwater monitoring data, results of ASS/PASS validation and testing results and a summary of any malfunction of pollution control equipment or any environmental incidents. DWER reviews all of the data provided in the AER to assess compliance with the licence conditions and to monitor the environmental impacts from the premises. Condition 4.3.1 requires the occupier to notify the CEO if there is a breach of any licence limit (e.g. processing limits). This condition also requires the occupier to advise of any fires at the premises. The notifications required under this condition give DWER	Office of the Appeals Convenor, Report to the Minister for Environment, Appeal Number 13 of 2017

DECISION TABLE			
Licence section	**Condition number L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		sufficient notice of any environmental impacts at the premises so that DWER can determine if any further action is required to address the incident.	
Licence Duration	N/A	Planning approval from the City of Kwinana is limited to 27 July 2020. In accordance with the Department's *Guidance Statement: Licence Duration* (Revised August 2016), this licence has been granted to 27 July 2020 to coincide with the planning approval expiry date. Any *Environmental Protection Act 1986* approvals beyond this date will require additional planning approval to be in place.	DER *Guidance Statement: Licence Duration* (Revised August 2016)
Fitness and competence	N/A	Please refer to Appendix C	N/A

6 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
29/08/2016	Original Application advertised in West Australian	No comments received	
29/08/2016	Application referred to City of Kwinana	Copies of planning approval provided with the application referred to approval for an extractive industry. Clarification was sought from the City of Kwinana (the City) to determine if the planning approval also authorised composting, bioremediation, soil blending activities and neutralisation activities. Comment received from the City of 31/08/2016 stated: *A DA dated 2001 approved the use for Extractive Industry, Landfill and Resource Recovery. At that stage the City approved extractive industry applications for 5 years only and it appears during the DA renewals the "resource recovery" part was omitted in the heading of the recent approvals… The use of the land for soil bioremediation, compost manufacturing and soil blending is approved.*	N/A
18/10/2016	Proponent sent a copy of draft instrument	Comments received 18 November 2016 and included as Appendix E	DER's response included as Appendix F
28/03/2017	Licence issued	Licence issued to the occupier	
13/04/2017	Appeal lodged by Eclipse Soils Pty Ltd	Occupier lodged appeal with the Office of the Appeals Convenor. Appeal grounds are summarised in Appendix G.	
21/05/2018	Appeal decision	Appeals Convenor made a determination to allow the appeal in part.	Licence conditions and Decision Report have now been amended to reflect the recommendations provided in the Report to the Minister for the Environment, Appeal 13 of 2017, Office of the Appeals Convenor (March, 2018), as shown in these documents and summarised in Appendix G.

Date	Event	Comments received/Notes	How comments were taken into consideration
22/10/2018	Proponent sent a copy of the draft amendments	Comments received on 7 November 2018 from Eclipse Soils Pty Ltd. Eclipse requested the review of two items, as listed below. 1) Table 1.2.1 to be amended to 'contaminated soil containing hydrocarbons and/or pesticides'. 2) Table 3.1.1, Improvement Requirements IC1 and IC2 to be amended to align the wording with the process outlined in the Decision Document (i.e. refer to the potential for no improvements to be required, pending favourable outcomes from the groundwater monitoring results).	Table 1.2.1 has been updated to reflect that contaminated soil can contain hydrocarbons and/or pesticides. Table 3.1.1 and improvement requirements IC1 and IC2 have not changed. On 16 October 2018 DWER sought clarification from the Office of the Appeals Convenor on the Minister's determination for this item. At this time it was confirmed that the determination was to allow 'time for complying with improvement requirements IC1 and IC2 to be amended pending the results of additional groundwater monitoring'. The time has been amended (increased), as per this determination. This additional time will allow DWER to consider the additional groundwater monitoring results and the need for improvement requirements IC1 and IC2. In the case where monitoring results demonstrate that the limestone hardstands are of sufficient permeability to mitigate impacts to groundwater, then DWER will initiate an amendment of the licence to remove the related improvement requirements.

7 Risk Assessment

Note: This matrix is taken from the DER Guidance Statement: Risk Assessments (February 2017)

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost Certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

Appendix A: Key Documents and References

The key documentation considered and reviewed and as part of the assessment is detailed below.

	Document Title	Availability
1	Licence application dated 24 March 2016	DWER records
2	Supplementary information to licence application dated 1 June 2016 (provided in response to the Department's request of 11 May 2016 as several attachments were not provided with the initial licence application). The following plans or protocols were provided this submission: • Quality Control Plan (Eclipse Soils, Rev 6, May 2016), • Management Plan for Bioremediation and Remediation of Hydrocarbon and Pesticide Containing Materials (Eclipse Soils, May 2016); • Acid Sulfate Soils Management Plan (Eclipse Soils, 1 June 2016); • Water Retentive Landscape Shaping Soil Production Protocol (Eclipse Soils, May 2016); and • Structural Fill Sand Production Protocol (Eclipse Soils, May 2016).	
3	*2014 Annual Groundwater Monitoring Report, Resource Recovery Centre, Abercrombie Road, Kwinana, WA* prepared by Aurora Environmental (January 2015)	
4	*Acid Sulfate Soils Management Plan* – (Eclipse Resources, March 2004)	
5	*Eclipse Resources Lot 180 Abercrombie Rd Resource Recovery Centre Management Plan April 2005,* prepared by Eclipse Resources	
6	Works Approval W4424/2008/1 – approval for construction of two bioremediation pads.	
7	DER *Guidance Statement on Regulatory principles,* July 2015	Accessed at http://www.dwer.wa.gov.au
8	DER *Guidance Statement: Land Use Planning,* October 2015	
9	DER *Guidance Statement on Setting conditions,* October 2015	
10	DER *Guidance Statement on Licence duration,* August 2016	
11	DER *Guidance Statement on Licensing and Works Approvals Process,* August 2016	
12	DER *Guidance Statement: Decision Making, February 2017*	
13	DER *Guidance Statement: Risk Assessments, February 2017*	
14	DER's Guideline: *Treatment and management of soil and water in acid sulfate soil landscapes*, June 2015	
15	*Environmental Protection Peel Inlet - Harvey Estuary Policy 1992*	Accessed at http://www.epa.wa.gov.au

16	Office of the Appeals Convenor, *Report for the Minister for the Environment, Appeal Number 13 of 2017, Appeal in Objection to the Conditions Applied to a Licence, L8974/2016/1: Abercrombie Road Resource Recovery Centre, Abercrombie Road, Postans. Proponent: Eclipse Soils Pty Ltd, March 2018.*	Accessed at: http://www.appealsconvenor.wa.gov.au

Appendix B – Risk assessment

Hydrocarbon storage

Emission Description

Emission: Hydrocarbon and chemicals released into environment from the storage of fuels, oils and other chemicals.

Impact: Contamination of surrounding land, groundwater and surface water drainage systems from the addition of hydrocarbons.

Controls: The occupier has stated (2005 Management Plan) that fuel is stored at the premises in above ground bunded tanks which are constructed with a compacted limestone base and overlain by an impermeable plastic liner, which extends to cover the bund walls. Other chemicals and oils are stored in an onsite shed which is locked.

Risk Assessment

Consequence: Moderate

Likelihood: Rare

Risk Rating: Medium

Regulatory Controls

The storage of fuels is not a prescribed activity and in accordance with the Department's Guidance Statement: *Risk Assessments* (February 2017), the onsite storage of the occupier's fuel, chemical or oils, is not regulated by DWER and no specific conditions for hydrocarbon storage have been included on the licence. Any discharges or spills of fuel, oil or other chemicals into the environment may be subject to the *Environmental Protection (Unauthorised Discharges) Regulations 2004.*

Residual Risk

Consequence: Moderate

Likelihood: Rare

Risk Rating: Medium

Emission Description (Fires)

Emission: Smoke and emissions to air in the event of a fire. Contaminated fire wastewaters generated from firefighting activities.

Impact: Contamination of surrounding land and surface water drainage systems from the addition of contaminated fire wastewater and ash fallout. There are potential impacts on ecology of surface water. The premises is located within a TEC buffer area, and 190m away from endangered melaleuca shrublands, which could be impacted by a bushfire, if embers from a compost fire blow in a northerly direction.

Controls: Although the occupier has not specified any controls for managing fire risk, the two abstraction bores with piping, reticulation and sprinkler systems allow for an increased response time in the event of a fire. The occupier has proposed a separation distance of 4m between green waste windrows, with these windrows limited to 3m in height and being 5m wide. The Delegated Officer considers that these separation distances and windrow dimensions assist in reducing the spread of fire to other windrows, which assist in reducing the amount of air emissions and waste water generated in the event of a fire.

Risk Assessment

Consequence: Major

Likelihood: Unlikely

Risk Rating: Medium

Regulatory Controls
Table 1.2.2 of condition 1.2.3 includes the occupier's proposed windrow dimensions and separation distance (clear ground) between green waste windrows, and the process requirements (maintaining a specified temperature range and moisture content) to assist in reducing the risk of fires.

Residual Risk
Consequence: Major
Likelihood: Rare
Risk Rating: Medium

Emission Description (Fugitive dust emissions)
Emission: Fugitive dust emissions from the loading/unloading of wastes, general vehicle movements, lift-off from stockpiles, and from mulching operations if moisture levels are too low.

Impact: Degradation of local air quality. Dust emissions blocking photosynthesis in the *Melaleuca huegeli – Melaleuca acerosa* shrublands Threatened Ecological Community (TEC) 190m north of the Premises. Nuisance impacts on the comfort and amenity of sensitive receptors. Health and wellbeing impacts on sensitive receptors located 375m from the Premises.

Since 2008, DWER and its former departments have not received a dust related complaint in regards to the premises operations. Based on Department records, two dust complaints received prior to 2008 were rectified by utilising dust suppression measures such as sprinklers and a water cart.

Controls: The application indicates that water reticulation has been installed around the northern, eastern and southern boundaries of Lot 115, extending into Lot 2. The water reticulation main is used to provide water for dust suppression, compost manufacturing and soil blending, bioremediation and to assist in the revegetation of the site.

The water reticulation main is fed by 2 on-site groundwater production bores with a combined bore capacity of approximately 120,000 litres/hour. The application notes the current capacity is sufficient to accommodate the water requirements for the site.

A previous management plan "Eclipse Resources Lot 180 Abercrombie Rd Resource Recovery Centre Management Plan April 2005" (2005 Management Plan) was provided to the Department and has been considered in this risk assessment for dust emissions. The dust emissions section of the 2005 Management Plan states that the site has a sprinkler system installed for dust suppression and that loads entering the site are wet down if required.

Risk Assessment
Consequence: Minor
Likelihood: Possible
Risk Rating: Medium

Regulatory Controls
Lot 115 is located within the *Environmental Protection (Kwinana) (Atmospheric Wastes) Policy 1999* (Kwinana EPP), which aims to provide ambient air quality standards and limits for the concentration of atmospheric wastes in the Kwinana Industrial area.

General dust provisions relating to ambient concentrations of total suspended particulates (TSP) are covered with the purpose of the Kwinana EPP to protect the 'beneficial uses' of the environment.

The prevailing wind direction for this site is towards east in the morning changing towards the south-west in the afternoon. It is noted that the closest sensitive receptors to this premises are located 375m and 750m south of the Premises. The closest sensitive ecosystem is the TEC 190m north of the Premises. None of these receptors are in the direction of the prevailing winds. The location of the receptors being away from the direction of the prevailing winds will assist in limiting impacts of dust emissions on the receptors however the following regulatory controls have been deemed appropriate by the Delegated Officer to further manage fugitive dust from the Premises.

Condition 1.2.5 (and Table 1.2.4) has been included on the licence to specify infrastructure and operational requirements related to dust suppression. Table 1.2.4 refers to the two onsite abstraction bores, reticulation main and sprinkler system at the Premises. The table also requires the equipment/infrastructure to be in good working order which assists in providing adequate dust control onsite. This condition and table reflects the dust abatement measures proposed in the 2005 Management Plan (as detailed above in the 'Emissions description' section) and licence application (24 March 2016).

Condition 1.2.6 (and Table 1.2.5) specifies management measures that are to be implemented to further mitigate fugitive dust emissions on stockpiles, unsealed roads and other activities to mitigate the generation of visible dust. Condition 1.2.6 requires an activity to cease where dust management measures have been implemented but have not prevented dust lift-off from impacting, or being likely to impact on, a sensitive receptor.

Condition L1.2.7 has been included to limit onsite stockpiles on the Premises to 7m or less above natural ground level which will further assist in reducing fugitive dust emissions.

Condition 1.2.8 has been included to specify that excavation or disturbance of previously filled waste is not authorised. The premises is classified as Possibly Contaminated – Investigation Required due to the presence of asbestos in previously landfill areas. Given the potential for asbestos having been previously filled at this premises, this condition prevents asbestos fibres from being released.

Residual risk
Consequence: Minor
Likelihood: Unlikely
Risk Rating: Medium

Emission Description (Leachate)

Information available on surface geology suggests that the Premises is comprised of Tamala Limestone and may be underlain by solution channels and cavities with some areas displaying karstic characteristics (McPherson and A. Jones, 2005 Geosciences Australia), indicative of a permeable geological profile. Groundwater has been identified at 11.5 to 20 mbgl (Perth Groundwater Atlas).

A review of groundwater monitoring results from between October 2011 to October 2014 which were presented in the *2014 Annual Groundwater Monitoring Report, Resource Recovery Centre, Abercrombie Road, Kwinana, WA* prepared by Aurora Environmental (January 2015) (2014 GWMR) was carried out by the Department. The events were undertaken as a requirement of licences L7766/2005/4 and L7766/2005/5 to complete annual groundwater monitoring. A summary of the groundwater data series is detailed below.

Regional groundwater contours indicate an inferred groundwater flow towards north-west while the local groundwater contours have an inferred groundwater flow towards to south-west, possibly due to the southern location of the site's abstraction bore as documented in the 2014 GWMR. The Spectacles wetland is located approximated 1.8km east of site and is considered to be up hydraulic of the Premises

and not in the direction of groundwater flow. Four bores (ARMB1, ARMB2, ARM4 now ARMB5 and ARMB3/ARMB6 now ARMB6A) were monitored during the groundwater monitoring events.

Bore ARMB1 is considered cross/up hydraulic gradient of the Premises however it is situated downgradient of Alcoa of Australia's Residue Drying Areas (RDA). It appears that groundwater in ARMB1 has not been impacted by the RDA's, which have alkaline properties, as groundwater data indicates a pH that is considered neutral (between 6 to 8) in this bore. For the purposes of the groundwater review, this bore has been considered as the control bore.

ARMB1 presented elevated levels of total nitrogen, chromium, copper and zinc when compared to the ANZECC & ARMCANZ (2000) Fresh Water criteria (FW criteria), as well as indicating the presence of dieldrin. All other bores indicated elevated levels of zinc compared to the FW criteria. ARMB2 and ARMB6A had consistently elevated levels of iron compared to both the FW criteria and the Department of Health Domestic non-potable groundwater use criteria (2014) (NPUG criteria). ARMB2 only displayed one event that had elevated iron compared to these two criteria. Iron in groundwater is common throughout the Swan Coastal Plain and may not be indicative of impacts from site activities.

Bores ARMB5 and ARMB6A had consistently elevated total nitrogen levels compared to the FW criteria however the results fluctuate from year to year and do not indicate whether there is a consistent increase or decline in total nitrogen levels across the data set. It cannot be determined from the existing data set if this is from the result of the site operations or from external activities occurring within the vicinity of the site.

Chromium and copper were elevated compared to the FW criteria in bores ARMB5 and ARMB6A which also had elevated levels of arsenic compared to both the FW and NPGU criteria. pH remained neutral across the site. Dieldrin was identified in bore ARMB6A however this may be a result of historical activities. Other than the presence of dieldrin, organochlorine pesticides were not detected in the results. Based on the 2014 data set, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), benzene, toluene, ethylbenzene, and xylenes (BTEX) were not detected in the bores.

Considering the distance to the Spectacles wetland and the fact it is up gradient of the site, the NPGU criteria are considered to be more relevant than the FW criteria for determining groundwater quality. The data set available indicated only slight elevations compared to the NPGU criteria however given the limited background data, the data set is inconclusive to determine if previous onsite activities have impacted on groundwater quality. The depth to groundwater and surface geology assist as natural controls to limit impacts to groundwater which can be examined through ongoing groundwater monitoring events.

Lot 2 is located within the *Environmental Protection (Peel Inlet-Harvey Estuary) Policy 1992* (PIHE EPP), which aims to protect the Estuary from further degradation by nutrient enrichment. The estuary itself is approximately 35km from the premises. The groundwater monitoring has limited data for total phosphorus (TP) however it suggests that TP is below the FW criteria.

*Emission: S*tormwater contaminated with leachate from composting operations and treatment of Acid Sulfate Soils (ASS) and Potential Acid Sulphate Soils (PASS). Stormwater contaminated with hydrocarbons and pesticides from soil bioremediation activities.

Pesticides typically accepted for treatment include:

- Dieldrin;
- Lindane;
- Aldrin;
- Chlordane;

- Dichlorodiphenyltrichloroethane;
- Metolachlor;
- 2,4-Dichlorophenoxyacetic acid; and
- 2,4,5-Trichlorophenoxyacetic acid.

Leachate generated from onsite activities infiltrating into groundwater and discharges into the PIHE EPP area.

Impact: Contamination of surrounding land, vegetation (including TEC area) and surface water drainage systems. Potential impacts on groundwater in the form of addition of nutrients, heavy metals, hydrocarbons, pesticides and suspended solids. It is noted that the nearest surface water bodies are the Spectacles Wetlands and the PIHE however these have not been considered as receptors for this assessment given that the Spectacles wetlands is located 1.8km up gradient of the premises and the PIHE is located 35km from the site, with any emissions to surface water considered rare.

Controls: Only green waste has been proposed as an input to the composting activity which is considered to have a lower emission risk. The proponent has advised that green waste is stored on a compacted limestone pad. The thickness and permeability of this pad has not been specified in the supporting documentation. The occupier has also not advised if leachate from these areas is directed to a storage pond however the supporting documentation refers to compost windrow stormwater collection ponds and greenwaste leachate being collected and stored at the premises.

The occupier has advised that ASS and PASS will be stockpiled and treated on a pad that has a minimum thickness of 300mm of crushed and compacted limestone which has a 300mm bund of the same materials as the base. This infrastructure is consistent with the treatment pad specifications in DER's Guideline: *Treatment and management of soil and water in acid sulfate soil landscapes* (June 2015) (DER's Guideline TMASS). The bund is 150mm high at the truck access point however the occupier has advised that this access point has drainage directed away from this location due to the fall of the pad.

Soils that contain contaminants that have a greater likelihood of leaching or an unable to be biodegraded to target treatment levels will be rejected for treatment. Bioremediation activities of hydrocarbon and pesticide contaminated soil are undertaken on two treatment cells that have been constructed with a base of 200mm clay and 150mm of crushed limestone and compacted to meet 1 x 10^{-9} m/s permeability. The cells are overlain by a 1.0mm high-density polyethylene (HDPE) liner and have been fully bunded with a 1% cross fall for drainage. The stormwater from these cells drain from a pipe to an HDPE lined stormwater basin which has been designed and constructed for a 1 in 5 year average recurrence interval (ARI) event. The bioremediation pads and stormwater basin were assessed as suitable infrastructure under works approval W4424/20081.

Risk Assessment
Consequence: Major
Likelihood: Possible
Risk Rating: High

Regulatory Controls
On 27 March 2017 Department Officers visit the Premises to determine the GPS coordinates of key pieces of infrastructure and to delineate the different waste activities on the Premises. Each area is defined by GPS coordinates in the definitions section of the licence and depicted on the Premises Map in Schedule 1 of the Licence. The GPS coordinates were determined by DER Officers based on advice from Eclispse staff on site on 27 March 2017 who identified to DER Officers the required extent of the waste storage areas and limestone hardstands.

Condition L1.2.1 has been included on the licence to limit the types and quantities of waste that can be accepted at the premises to those that have been assessed as suitable and can be sufficiently managed through the premises infrastructure and controls.

Condition L1.2.2 requires the occupier to remove any wastes from the Premises that are not authorised by condition 1.2.1. This condition assists in reducing the risk of stormwater becoming contaminated from the storage of non-conforming wastes.

Condition L1.2.3 specifies that wastes accepted onto the Premises may only be subject to the processes set out in Table 1.2.2 and in accordance with any process limits described in that Table. The process limits have been included to manage the activities to those that have been assessed through this decision document and have been considered to be necessary by the Delegated Officer to effectively regulate the composting process. The process requirements have been included to reduce the risk of leachate entering the environment and to reduce odour and dust emissions.

Table 1.2.3 (condition L1.2.4) has been included on the licence to specify the infrastructure for the storage and processing of wastes accepted at the site. This condition reflects the existing site infrastructure and controls. The greenwaste storage, mulching and composting areas have been proposed to be undertaken on a compacted limestone pad however the supporting documentation has not specified the thickness of the pad.

Table 1.2.3 also specifies that the pad for the ASS/PASS and green waste storage/processing areas has a minimum thickness of 300mm with a 300mm bund on all sides except for the truck drive over area. These requirements have been included to be consistent with the proposed ASS/PASS pad specifications and are also consistent with DWER's Guideline TMASS.

The requirement to direct all contaminated stormwater and leachate from these areas to a compacted limestone stormwater basin has also been included to reduce the possibility of contaminated stormwater runoff entering other waste storage areas, and to facilitate an area that allows for evaporation. Limited information has been provided with the application regarding stormwater/leachate management for the green waste storage and processing areas. Given the high risk associated with leachate emissions, Table 1.2.3 requires the stormwater pond to be constructed using 300 mm compacted limestone, and to maintain sufficient freeboard to prevent overflow. These thickness and material of the stormwater pond is consistent with the pad thickness for the ASS/PASS and greenwaste storage areas, and the freeboard requirement is consistent with the freeboard of the bioremediation stormwater basin.

The Delegated Officer has considered the geological profile, feedstock accepted onto site, distance to groundwater and the sites location within the PIHE EPP and considers that a permeability not more than 1 x 10^{-8} m/s is required for the that storage and treatment pads for green waste and ASS/PASS. The permeability of the ASS/PASS and greenwaste pads has not been provided with the application.

Given the depth to groundwater (minimum 11.5m bgl) and the surface geology being calcarenite limestone, the infrastructure requirements for these areas are anticipated to assist in preventing discharges of leachate into the environment. In the event that acidic leachate migrates through the ASS/PASS pad, it will be naturally treated through the surface limestone. This treatment process is likely to produce salts that have the potential to enter the groundwater. This can be monitored through groundwater sampling.

Previous groundwater data has identified the presence of salts, TN, dieldrin and some metals (arsenic, chromium, copper, iron and zinc) however the groundwater data series is inconclusive to determine if the premises activities have impacted on water quality, given the limited availability of background data.

The licence requires increased groundwater monitoring to determine the impacts of the premises' activities on groundwater quality. Improvement condition L3.1.1 (and Table 3.1.1 specifying requirements IC1 and IC2) requires the occupier to undertake permeability testing of the green waste and ASS/PASS pads to demonstrate hydraulic conductivity of 1 x 10^{-8} m/s and where this has not been met, a timeframe of proposed actions to be undertaken to meet this requirement. The requirement to undertake these improvements is pending the outcome of the additional groundwater monitoring to assess whether or not the existing hardstand areas provide sufficient permeabililty to mitigate potential impacts of leachate.

The PIHE EPP aims to limit phosphorus concentrations into the estuary system. Total phosphorus (TP) data is limited in the groundwater data series however what data is available suggests that TP is below the FW criteria. Based on the results of the groundwater monitoring and given the considerable distance to the estuary (approximately 35 km), the premises' activities are not considered likely to result in significant nutrient inputs to the Peel-Harvey catchment.

Table 1.2.3 also includes the requirement to maintain sufficient freeboard in the stormwater basin to reduce the risk of overtopping. This condition also requires the integrity of the containment infrastructure to be maintained so that the effectiveness of these controls is preserved. Any discharges of contaminated stormwater to the environment may be subject to the *Environmental Protection (Unauthorised Discharges) Regulations 2004.*

Given the high risk of leachate to groundwater and the presence of the TEC shrubland located downgradient of the site, the occupier is required under condition L2.4.1 (and Table 2.4.1) to undertake quarterly groundwater monitoring. This assists in determining if site activities are impacting on groundwater as well as providing a better data set depicting seasonal trends.

Residual Risk
Consequence: Major
Likelihood: Possible
Risk Rating: High

Emission Description (Odour)
Emission: Dry mulching, soil blending operations and greenwaste composting activities may give rise to odour. Odour may be generated from the pooling of leachate and from the compost windrows, especially if they become anaerobic or when windrows have increased levels of nitrogen. Storage and treatment of ASS has the potential to produce odour due to the generation of hydrogen sulphide during blending and treatment activities. Generation of odours from the storage and treatment of hydrocarbon and pesticide contaminated soils.

Impact: Potential for nuisance odour complaints. The Delegated Officer considers that outdoor uncovered composting facilities producing more than 35,000 tonnes per annum, that do not have a separation distance of 2500m, represent a higher odour risk to sensitive receptors.

The prevailing wind direction for this site is towards east in the morning changing towards the south-west in the afternoon. It is noted that the closest odour sensitive receptors to this premises are located 375m and 750m south of the Premises, which are not directly in the direction of the prevailing winds.

Odour impacts are anticipated to be localised. Based on Department records, no odour complaints have been received for this Premises when it was previously undertaking the proposed activities.

Controls: No information on odour control was provided with the application. An odour monitoring report has been provided however this does not specify any controls. Monthly odour monitoring has

been proposed however the information regarding how this will be undertaken has not been provided. The occupier has also proposed that if an offensive odour has been identified in a windrow, the occupier proposes to turn the windrow immediately for aeration purposes. Only green waste has been proposed for composting operations. No odorous feedstocks are proposed to be composted.

Risk Assessment
Consequence: Minor
Likelihood: Possible
Risk Rating: Medium

Regulatory Controls
Although the composting facility is less than 2,500m from sensitive receptors, the Delegated Officer considers that the following regulatory controls are adequate for managing odours from the premises given that the receptors are not within the prevailing wind direction of the site, no odorous feedstocks will be accepted for composting, and that no complaints were received regarding odours when the premises was previously operating.

Condition 1.2.1 limits authorised waste types accepted onsite and assists in restricting the acceptance of odorous wastes onto the site. Table 1.2.2 (condition 1.2.3) restricts composting operations to the use of green waste only, requires aerobic conditions to be maintained, and specifies an input nutrient balance (carbon: nitrogen ratio) and moisture content that the Delegated Officer considers appropriate to assist in reducing the generation of odours within windrows and is consistent with the controls specified for similar sites using similar feedstocks and processes. This condition assists in addressing the level of risk posed from odours on public amenity and wellbeing. Condition 4.2.2 has been included to ensure that records relating to C:N ratios are available on the CEO's request. This allows DWER to verify compliance with condition 1.2.3.

Table 1.2.2 also sets requirements for ASS/PASS to be stored and treated in accordance with the Department's ASS Treatment Guidelines. This incorporates requirements relating to the neutralisation of ASS/PASS, validation of treatment, and controls on the stockpiling of materials.

Residual Risk
Consequence: Minor
Likelihood: Unlikely
Risk Rating: Medium

Emission Description (Noise)
Emission: Unreasonable noise emissions from the loading/unloading of wastes, general vehicle movements (including reversing beepers), turning of composting, mulching and soil blending operations.

Impact: There is the potential that noise emissions may cause low level amenity impacts on sensitive noise receptors located 375 metres from the boundary. Any noise emissions are anticipated to be short-term and localised with reversible effects. Department records indicate that no noise related complaints were received when the proposed operations were previously undertaken on the premises.

Controls: The occupier's planning approval authorises operational hours to be between 0600 to 1800 Monday to Saturday however trucks are not authorised to leave the Premises prior to 0630. No specific noise controls have been provided with this licence application to avoid duplicating planning controls.

A previous management plan (April 2005) was provided to the Department and has been assessed to the extent that it applies to the current operations. The section for noise emissions states that the occupier "ensures the site operates in compliance with the *Environmental Protection (Noise) Regulations 1997.*"

Risk Assessment
Consequence: Minor
Likelihood: Unlikely
Risk Rating: Medium

Regulatory Controls
No specific regulatory controls for noise emissions have been included on the licence. The Delegated Officer considers that the medium risk of noise emissions can sufficiently be managed by the occupier adhering to the hours of operation specified on the planning approval. Hours of operation have not been included as regulatory controls on the licence to avoid duplication with the planning approval.

The occupier is required to comply with the *Environmental Protection (Noise) Regulations 1997* at all times which provides an adequate method for regulating noise emissions from the Premises.

Residual risk
Consequence: Minor
Likelihood: Unlikely
Risk Rating: Medium

Appendix C – Fitness and Competence

When assessing and making a decision on whether to grant a works approval or licence the CEO or his delegates can have regard to the fitness and competency of the proposed works approval holder/licensee. An internal review of Eclipse Soils Pty Ltd (ESPL) was undertaken, based on a review of records held by the Department.

The Delegated Officer has identified that Eclipse Soils Pty Ltd has the same Directors as Eclipse Resources Pty Ltd and therefore the compliance history of Eclipse Resources Pty Ltd is relevant to consider in the assessment.

Previous operating history

The Licensee has experience in composting, soil blending and recycling. Below is a summary of the licensing history for Eclipse Resources Pty Ltd (ERPL) , which is a sister company of ESPL.

- Eclipse Resources Pty Ltd (ERPL) operated this premises (Abercrombie) pursuant to a licence (L7766/2001/1) granted under Part V of the EP Act for prescribed premises categories 62 (solid waste depot, later amended to category 61A Solid waste facility), 63 (class I inert landfill) and 67A (compost manufacturing and soil blending).
- ERPL operated the Wanneroo Road Resource Recovery Centre (WRRRC) at Lot 12 on Plan 6905 Wanneroo in Neerabup pursuant to two licences (L7388/1999/1 and L8315/2008/1) granted under Part V of the EP Act for prescribed premises categories 61A, 63 and 67A.
- ERPL also operated the Flynn Drive premises under a licence (L7103/1997/4 – occupied by Readymix Holdings Pty Ltd for first three versions) granted under Part V of the EP Act for prescribed premises categories 63, 64 (Class II or III putrescible landfill site) and 67A.

Compliance history check

A search of the Department's Industry Licensing System (ILS) and Incident Complaint Management System (ICMS) has been undertaken using links to other previously licensed prescribed premises who share Directors or links to Directors or the CEO of ESPL.

Based on Department records, it appears that no complaints were received in relation to either the Flynn Drive or WRRRC premises.

The Department has received complaints primarily relating to dust from and non-conforming waste acceptance at the ARRRC. A summary of the key findings and compliance matters that the Department consider relevant to the Application is provided below:

- Undertaking PASS treatment as identified by departmental staff during a site visit in June 2005, and expansion of operations at the ARRRC premises without authorisation which was also identified by departmental staff during a site visit in April 2007.
    - The licence was amended to authorise these activities to be undertaken and the Delegated Officer therefore considers that this matter has been resolved.

- Clearing of native vegetation without authorisation at the ARRRC premises as identified by departmental staff in September 2005 and November 2007.
    - Both of these matters were closed on the basis that there was insufficient evidence to proceed.
    - The licence prescribed premises is limited to areas that have already been cleared and the licence does not authorise any new clearing. The Delegated Officer considers these controls sufficient to prevent risk of any clearing at the Premises.

- A dust complaint was received from a member of the public in January 2006 which was substantiated by departmental officers. ERPL proposed to increase the use of sprinklers on the site.

- Failure to complete all required groundwater sampling for the ARRRC premises for the 2008/2009 reporting period.
    - A formal Letter of Warning was served on ERPL as a result of this non-compliance.
    - The licence requires groundwater sampling to be undertaken. This offence occurred in 2009, the Delegated Officer notes that more recent groundwater monitoring has been undertaken in accordance with the previous licence.

Landfill levy

- ERPL has operated the ARRRC premises since April 2002 and complied with the requirement to lodge returns and pay the landfill levy up to and including the return period of 1 April to 30 June 2008. From 1 July 2008, ERPL had ceased lodging quarterly survey, returns or paying the landfill levy for each return period since for the whole duration of this licence, which is a total of 27 return periods.

- ERPL operated the WRRRC premises from October 2000 to April 2005 (L7388) and complied with the requirement to lodge returns and pay the landfill levy for this duration.

- The WRRRC premises recommenced operations from February 2009 to August 2014. During this time ERPL had ceased lodging quarterly survey, returns or paying the landfill levy for each return period since for the whole duration of this licence, which is a total of 22 return periods.

- ERPL operated the Flynn Drive premises since 1 July 2000 to 30 June 2008 and complied with the requirement to lodge returns and pay the landfill levy up to and including the return period of 1 April to 30 June 2008. From 1 July 2008 ERPL , had ceased lodging quarterly survey, returns or paying the landfill levy for each return period since for the duration of when inert material ceased to be accepted onsite (approximately in mid-June 2009), which is a total of 4 return periods.

Summary of the landfill levy offences:

- Failing to lodge a quarterly survey report with the CEO of the Department is an offence under regulation 10(6) of the *Waste Avoidance and Resource Recovery Regulations 2008.*
- Regulation 33 of the *Environmental Protection Regulations 1987* (EP Regulations) imposes a condition on licensed landfills that the licensee is to pay any levy imposed under the *Environmental Protection (Landfill) Levy Act 1998* in respect of waste to which this Part applies that is received at those premises; and, any levy imposed under the *Waste Avoidance and Resources Recovery Levy Act 2007* in respect of which the *Waste Avoidance and Resource Recovery Regulations 2008* Part 3 applies that is received at those premises.

- Failure to comply with licence conditions is an offence under section 58(1) of the EP Act.

- Failing to make and lodge a levy return with the CEO of the Department is an offence under regulation 18(2) of the *Waste Avoidance and Resource Recovery Regulations 2008.*

Summary of legal proceedings:

- Eclipse Resources commenced proceedings in the Supreme Court in 2009 seeking, amongst other remedies, a declaration to the effect that it was not required to pay the levy imposed under the *WARR Levy Act* in respect of the activities carried out on the Abercrombie Road Site (CIV 1364-09).

- The Minister for Environment issued a counterclaim in the same proceedings, and commenced separate proceedings in 2013 (CIV 2385-13), seeking to recover unpaid levy

from Eclipse in respect of material filled at the Abercrombie Road Site between 1 July 2008 and 31 December 2011.

- On 9 October 2014 Eclipse commenced further proceedings in the Supreme Court (CIV 2416-14) seeking further declarations to the effect that it is not liable to pay levy in respect of the activities carried out on the Abercrombie Road Site, and in particular in respect of material received and filled at the Site between 1 January 2012 and 30 September 2014.
- The court proceedings relating to the non-payment of the levy by Eclipse Resources were determined by Justice Beech in *Eclipse Resources Pty Ltd v State of Western Australia [No.4] [2016] WASC 62* that Eclipse's activities were subject to the landfill levy.

The potential for similar non-compliances/complaints from the proposed premises has been assessed. The Delegated Officer has given consideration to the fact that the majority of the non-compliances are in regards to the landfill levy. A landfill category has not been sought by the occupier and the occupier has confirmed that no landfilling will be undertaken onsite.

The majority of the compliance and history of legal proceedings is not relevant to the occupier's ability to effectively operate the proposed operations, nor does it affect the occupier's ability to comply with the requirements of this licence. The non-compliances related to groundwater monitoring and undertaken prescribed activities without authorisation can be sufficiently regulated and monitored through regulatory controls on the licence.

On this basis, the Delegated Officer has determined that the licence will not be refused due to the occupier's compliance history.

Appendix D – Premises Map

The Premises is shown in the map below. The pink line depicts the Premises boundary.



Appendix E – Comments re initial draft licence

No	Page and paragraph	Issue	Comment
1	3 of 33, 1st para under "Premises description and Licence summary	Proposed granting of a licence over only part of Lots 115 & 2	1. Eclipse Soils requires the whole site for the manufacture of blended soils and mulches, and for fill for offsite sale. 2. Eclipse Soils also requires the whole site for the storage and stockpiling of materials received 3. Eclipse Soils applied for a licence for the whole of Lots 115 & 2 for these purposes
2	4 of 33, 3rd para	"The main emissions arising from the proposed activities include: ..."	Should read "The main **potential** emissions arising from the proposed activities include: ..."
3	8 of 33, Table 1.2.2, cell for Green waste under Process requirements	(a) "an input nutrient balance (carbon: nitrogen ratio) of 25:1 to 35:1 is to be maintained (b) "All mulched green waste shall be stored in windrows no larger than: • 3 metres high; • 5 metres wide; and • Have 4 metres of clear ground between windrows"	The rationale for this proposed condition in terms of environmental protection is sought Eclipse Soils will propose alternate wording based on operational factors
4	10 of 33, cell for 3 under Column 2	"Reticulation sprinklers must be capable of wetting down the entire surface of all stockpiles on the premises simultaneously or within a period of thirty minutes"	Some stockpiles such as clay and limestone track material set hard and do not require wetting down, nor do stockpiles of tree trunks and stumps. A better approach would be performance based wording along these lines:

			"Reticulation sprinklers must be capable of ensuring that any fugitive dust from stockpiles of materials is confined to the premises such that unacceptable levels are not emitted offsite"
5	10 of 33, 1.2.6 (b)	"The licensee must ensure that: (b) all stockpiles; Are maintained in a damp state during operations at all times..."	See comment 4 (above)
6	10 of 33, 1.2.8	"The Licensee shall ensure that all stockpiles at the premises are limited to 7m or less"	Eclipse Soils holds material in stockpiles at the bottom of the quarry void over 20m deep. A 7m height limit under these circumstances is irrelevant to achieving what is presumed to be the desired objective: dust management. The solution proposed in 4 (above) is sufficient to manage this low risk matter.
7	10 of 33, 1.2.9	No activities to emit noise beyond the premises boundary outside 7am – 6pm Monday - Saturday	There are no residences within 1.5km of the site. The Department of Agriculture & Food's manager's house on the adjacent Medina Research Station has been vacant for 4-5 years and there are no known plans to occupy it. In fact he land has been identified in the government's list for asset sale. Many of Eclipse Soils customers, including those under contract to deliver Government works, have their own site restrictions in built up areas (CBD, residential and commercial) that require them to operate outside normal business hours. Eclipse Soils needs to be able to receive materials outside the proposed hours. Eclipse Soils will negotiate reasonable operating times with the City of Kwinana because

			Eclipse Soils understands that the Environmental Protection Act 1986 does not regulate vehicle noise (see Regulation 3 of the *Environmental Protection (Noise) Regulations 1997*.
8	10 of 33 Table 2.2.1	Waste Inputs; Green waste, Inert waste Type 1, Clean fill, Peat and acid sulfate soils; Frequency	Monitoring volumes of "each load arriving at the premises" in m^3 is ambiguous in meaning If it is intended that the agreed volumes of each load received is recorded then that is reasonable Eclipse Soils seeks clarification of this proposed requirement.
9	10 of 33 Table 2.2.1	Other outputs; Frequency	See 8 (above).
10	11 of 33, Table 2.3.1 under "Process description" Composting	Carbon: nitrogen ratio to be monitored weekly	The rationale for this proposed condition in terms of environmental protection is sought
11	11 of 33 Table 2.4.1	Quarterly monitoring of groundwater quality	Eclipse Soils considers that as the site has been in operation since 2002 and annual water quality monitoring since then has not detected any environmental problems. Eclipse Soils recommends that annual water quality monitoring and reporting is appropriate and adequate because there will be reduced, not increased activities on the site.
12	12 of 33 Table 3.1.1	Hydraulic conductivity of the composting (IC1) and ASS/PASS pads (IC2) is required to meet 1 X 10^{-8} m/s	There is no issue with storm water basins achieving this permeability, but it is considered unnecessary for composting and ASS/PASS purposes because: 1. Eclipse Soils only composts plant materials. 2. No bio-solids or animal manures are involved. 3. Nitrogen is applied in small quantities when needed because it is a significant cost in composting

			4. Aerobic composting of plant materials occurs naturally in forests 5. There is no evidence of a groundwater problem since operations commenced in 2002 6. In the case of ASS/PASS the site is underlain by limestone 2m above the groundwater table. It is recommended that this figure be changed to 1 X 10^{-6} m/s which is achievable with a compacted limestone compacted pad. 1 X 10^{-8} would require clay which may become untrafficable when water is applied or it rains, or asphalt/concrete which would be commercially unviable.
13	12 of 33 Table 3.1.1	IC3. Install and maintain suitable fencing around the whole of the Premises boundary	This condition is unrealistic unless the Premises boundary is the same as the site boundary. See comment 1. (above). (In any event GPS coordinates would be sufficient).
14	16 of 33 Map of monitoring bores	ARMB6 is an "extraction bore"	This is incorrect. Only ARMB3 and ARMB 4 are extraction bores.
15	Decision document 4 of 31 Last para	"The main emissions arising from the proposed activities include:..."	Should read "The main **potential** emissions arising from the proposed activities include:..." See also comment 2 (above).
16	Decision document 8 of 31 Decision table L3..1.1 (IC3)	See comments 1 and 13 (above)	See comments 1 and 13 (above)
17	Decision document 9 of 31 Decision table L3.1.1 (IC3) continued	See comments 1 and 13 (above)	See comments 1 and 13 (above)
18	Decision document 12 of 31 Decision table	"Monthly odour monitoring has been proposed..."	Eclipse Soils has no recollection of making this proposal.

	L1.2.3 (Table 1.2.2)		
19	Decision document 14 of 31 Decision table L1.2.9	Restricted operating hours	See comment 7 (above)
20	Decision document 15 of 31 Decision table L2.1.2	Quarterly groundwater quality monitoring	See comment 11 (above)
21	Decision document 16 & 17 of 31 Decision table L2.4.1	Quarterly groundwater quality monitoring	See comment 11 (above)
22	Decision document 18 of 31 Decision table L3.1.1	IC1 & IC2 IC3	See comment 12 (above) See comment 1 & 13 (above)
23	Decision document 26 of 31 Para 7	Hydraulic conductivity of the composting (IC1) and ASS/PASS pads (IC2) is required to meet 1 X 10^{-8} m/s	See comment 12 (above)
24	Decision document 28 of 31	Compliance history check "DER has received complaints primarily relating to dust from and non-conforming waste acceptance at the ARRRC"	This is a general statement. Eclipse Resources has received no complaints from operating at this site. If the existence of complaints is to be mentioned, then relevant details should be given including: (a) Month and year of complaint received by DER (b) Public or regulator's complainant (c) Nature of complaint (d) Comment as to whether or not it was satisfactorily resolved by Eclipse Resources

Appendix F – Draft Licence comments

Summary of comments received on original draft licence documents		
Occupier's comment reference number	**Issue**	**How comments were taken into consideration**
1	Restricting prescribed premises boundary to part of Lots 2 and 115.	The Delegated Officer considered the risk posed by expanding the prescribed premises boundary to the whole of Lots 2 and 115 and has authorised the whole of these lots to be included in the prescribed premises boundary. Additional correspondence from the occupier dated 1 February 2017 stated that a pad of crushed limestone had been constructed in the fill area. The dimensions of this pad, including thickness of limestone and permeability, have not been provided. In the absence of this information, the Delegated Officer has determined that the former landfill area has not been demonstrated to have the infrastructure required to mitigate risks to groundwater from the storage and processing of wastes that will be authorised to be received and processed at the Premises (see conditions 1.2.1, 1.2.3 and 1.2.4), with the exception of Clean Fill. As a result the Delegated Officer considers it appropriate to only authorise the storage of clean fill in the north-eastern portion of the Premises given the high risk of leachate to the receiving environment. Should Eclipse consider they can demonstrate the suitability of infrastructure in this area to mitigate risks to groundwater from other wastes they may wish to consider submitting a licence amendment application for DER to consider. GPS coordinates of the Clean Fill Storage Area were determined on advice from Eclipse staff during a site visit on 27 March 2017. Table 1.2.2 of condition 1.2.3, Table 1.2.3 of condition 1.2.4 and the Premises Map in Schedule 1 have been amended to reflect this. References to 'part lots' have also been removed from both the licence and decision document. Conditions 1.2.10 and 1.2.11 have been included on the licence to also reflect the storage of Clean Fill and to regulate stockpile management within the former fill area.

2	Change of wording in licence 'Premises description and Licence summary' regarding emissions.	The Delegated Officer amended this summary to include reference to 'potential' emissions as requested by the occupier.
3	Seeking clarification for green waste process requirements in Table 1.2.2 for: (a) carbon: nitrogen ratio; and (b) dimensions of windrows.	(a) The ratios in Table 1.2.2 have been set in accordance with those for similar sites using similar feedstocks and processes. The Delegated Office considers this ratio to be appropriate for odour management within stockpiles as an increase in nitrogen may result in elevated odour emissions. This condition is consistent with DER's Guidance Statement: *Setting Conditions* (October 2015) to assist in addressing the risk that odour emissions pose to amenity values and public health. The decision document has been updated to provide additional clarification. (b) Dimensions of windrows have been included on the licence are as specified by the occupier in section 2.2.3 of the document *Eclipse Soils Quality Control Plan* (May 2016). The Delegated Officer has considered that these separation distances assist in fire prevention. The decision document has been updated to specifically address fire risk as it relates to windrow management and windrow dimensions as proposed by the occupier. This condition is consistent with DER's Guidance Statement: *Risk Assessments* (November 2016) where DWER will set conditions reflecting appropriate applicant controls when applicant controls have been relied upon in the risk assessment. If alternative windrow dimensions are required, the occupier may submit a licence amendment application which will be assessed by DWER.
4	Proposed change to wording of Table 1.2.4 for reticulation sprinklers	The operational details in for reticulated sprinklers in Table 1.2.4 were reworded to more accurately reflect the intent to mitigate dust from stockpiles.
5	Proposed change to the requirement for all stockpiles to be maintained in a damp state.	Condition 1.2.6 was updated to specify fugitive dust management requirements, which includes proactively suppressing dust when visible dust lift-off is identified, or anticipated, managing vehicle speeds to reduce dust, and cessation of activities when dust management measures fail.
6	Stockpile height	Condition 1.2.8 was updated to specify that all stockpiles on the Premises outside of the Clean Fill Storage Area are limited to a maximum height of 7m above natural ground level. Stockpiles within the Clean

		Fill Storage Area are limited to natural ground level (the embankments surrounding the clean fill area) by condition 1.2.211 to mitigate risks associated with dust emissions.
7	Restriction of operating hours	Upon review of the risk assessment, the Delegated Officer considered that the medium risk of low-level impacts to amenities can sufficiently be addressed by the occupier adhering to the hours of operation specified in the planning approval. Condition 1.2.9 was removed from the licence to avoid duplication of planning requirements. The occupier is required to comply with the *Environmental Protection (Noise) Regulations 1997* at all times. The decision document has been updated to reflect this change.
8	Table 2.2.1, monitoring of inputs and outputs.	Table 1.2.2 was reworded to 'Monitoring and recording of inputs and outputs'. The intent of this condition is to require the volume of each load being received at the premises, to be recorded. This condition also requires the volume of each load leaving or rejected from the Premises to be recorded. The 'Monitoring of inputs and outputs' section of the decision document was amended to reflect this.
9	As per item number 8 above.	Please see comments above for item number 8.
10	Table 2.3.1, monitoring of the carbon: nitrogen ratio	As per the Delegated Officer's comments for item number 3(a) above, the carbon: nitrogen ratio specified in the licence assists in reducing unreasonable odour emissions from windrows. The requirement to monitor this ratio on a weekly basis was removed from the licence on the basis that the occupier may undertake internal processes/monitoring for meeting compliance with maintaining the carbon: nitrogen ratio specified in Table 2.3.1.
11	Table 2.4.1, frequency of groundwater monitoring	As detailed in Appendix B 'Emission description (Leachate)' of the decision document, a review of historical groundwater monitoring undertaken at the Premises was undertaken by DER officers and it was identified that the data set was inconclusive to determine if previous onsite activities had impacted on the groundwater quality. The risk assessment identified that leachate poses a high risk to the environment and that quarterly monitoring was required to provide a more accurate data set depicting seasonal trends. No changes were made to Table 2.4.1 or the decision document in regards to groundwater monitoring frequency.

		If the quarterly groundwater monitoring demonstrates that site activities are not impacting on the groundwater, the frequency of monitoring may be reviewed in the future.
12	Permeability of hardstands: IC1 and IC2 of Table 3.1.1.	As specified in Appendix B under 'Emission Description (Leachate)', the Delegated Officer did a risk-based assessment of leachate emissions to groundwater and identified a high risk level of leachate on the receiving environment which is located within the *Environmental Protection (Peel Inlet-Harvey Estuary) Policy 1992* area. As a result of the high risk, the Delegated Officer considered that a hydraulic conductivity of not less than 1 x 10^{-8} m/s is required for the composting and ASS/PASS treatment pads to assist in mitigating the high risk of leachate emissions. This section of the decision document was expanded to provide further clarity for this limit.
13	IC3 of Table 3.1.1: requirement to install and maintain fencing for premises boundary.	In accordance with the Delegated Officer's comments for item number 1, IC3 of Table 3.1.1 remained on the licence to assist in preventing activities being undertaken outside of the prescribed premises boundary however this now includes the whole of Lots 2 and 115.
14	Clarifying that bore ARMB6 is not an extraction bore.	The text provided with the 'Map of monitoring bore locations' in Schedule 1 of the licence was updated to reflect the occupier's comment that bore ARMB6 is not an extraction bore. ARMB6A replaces bore ARMB6.
15	Change of wording in decision document 'Executive summary of proposal and assessment' regarding emissions	The Delegated Officer amended this summary to include reference to 'potential' emissions as requested by the occupier.
16	Prescribed premises boundary in the 'Decision Table' and requirement to install and maintain fencing.	Please see comments from item numbers 1 and 13.
17	As per item number 16 above	Please see comments from item numbers 1 and 13.
18	Seeking clarification on when the occupier proposed monthly odour monitoring.	Section 2.3.5: Odour monitoring (Page 7) of the document *Eclipse Soils Quality Control Plan* (May 2016) states "Odour monitoring should be conducted at least once per month to ensure the composting of materials are not omitting an offensive odour… if an

		offensive odour is detected, the source windrow should be turned immediately." As the occupier did not propose any changes to this part of the decision document, this section was not been amended.
19	Restriction operating hours	Please see comments above for item number 7.
20	Frequency of groundwater monitoring in the 'Decision Table'.	Please see comments above for item number 11.
21	As above for item number 20.	Please see comments above for item number 11.
22	Improvement conditions IC1 and IC2 of Table 3.1.1 regarding hydraulic conductivity and improvement condition IC3 regarding fencing requirements for premises boundary, as discussed in the decision document.	Please see comments above for item numbers 1 (prescribed premises boundary) and 12 (hydraulic conductivity).
23	As per item number 22 above for IC1 and IC2 in decision document	Please see comments above for item number 12.
24	Appendix C of decision document 'compliance history check' regarding dust complaints received by DER.	This section will be expanded to include further information on dust complaints as requested by the occupier.

Appendix G – Appeal determination

Summary of appeal grounds and determination		
Appeal ground	**Issue**	**DWER amendments to address Appeals convenor advice**
1	Delineation of site into storage and processing areas	Relates to conditions 1.1, 1.2.3, 1.2.4 and Schedule 1. - Requirement of clean fill to be stored on a limestone pad is removed; and - Current delineated green waste and PASS/ASS areas remain, however flexibility has been added so that both areas can be utilised for these materials interchangeably. - Schedule 1 maps amended to remove reference to 'Clean Fill Storage Area'.
2	Waste acceptance	Relates to condition 1.2.1 - Amended wording of Table 1.2.1 to include hydrocarbon contaminated soil.
3	Green waste C:N criteria	Relates to condition 1.2.3 - Amended C:N ratio to allow for higher C:N ratio for ligneous/coarse material; - Amended wording to remove the limitation of green waste to be 'maintained' at a specific C:N ratio, and replaced this with to be 'achieved'.
4	Demonstration of permeability of storage processing pads	Relates to condition 3.1.1 and Improvement Conditions IC1 and IC2 of the original licence. - Improvement Conditions IC1 and IC2 have been amended to provide for additional time for their completion. This will allow for the review of additional groundwater monitoring results, prior to the requirements to complete these conditions being made.
5	Cessation of activities due to dust	Relates to condition 1.2.6, Table 1.2.5 - Table 1.2.5 'Cessation of activities' amended so that cessation only applies where there is, or is likely to be, a dust impact to a nearby sensitive receptor.
6	Dust suppression, requirement to keep all materials damp	Relates to Condition 1.2.7 and 1.2.6 of the original licence. - Condition 1.2.7 removed. - Condition 1.2.6, Table 1.2.5 amended to allow for water sprays to be operated to manage dust emissions.

7	Waste for burial	Relates to Condition 1.2.9 of the original licence. - Condition 1.2.9 removed.
8	Asbestos risk from activities within the former landfill area	Relates to Condition 1.2.10 of the original licence (now Condition 1.2.8) - Nil. Ground of appeal dismissed.
9	Clean fill stockpile restrictions	Relates to Condition 1.2.11 and 1.2.8 of the original licence. - Condition 1.2.11 removed. - Condition 1.2.8 (now 1.2.7) re-worded to address all stockpiles on the premises.
10	Recording of 'outputs' leaving the premises	Relates to Condition 2.2.1. - Nil. Ground of appeal dismissed.
11	Increased groundwater monitoring	Relates to Condition 2.4.1, Table 2.4.1 - Nil. Ground of appeal dismissed.
12	Volumetric surveys not required.	Relates to Condition 2.5.1 of the original licence. - Condition 2.5.1 removed.
13	Fencing boundary not required.	Relates to Condition 3.1.1, Improvement Condition IC3 of the original licence. - As the premises' boundary is already fenced, IC3 of Condition 3.1.1 has been removed.
14	Removal of waste from clean waste areas	Relates to Condition 3.1.1, Improvement Condition 4 on the previous licence (now Improvement Condition 1) - Nil. Ground of appeal dismissed.
15	Location/end use of ASS/PASS reporting	Relates to Condition 4.1.3(b) of the original licence. - Condition 4.1.3(b) removed.

Appendix H – May 2019 Licence amendment

The following guidance statements have informed the decision making on this amendment*:*

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*

It should be noted that risk ratings for this amendment may be different to the original assessment due to the Department's new risk assessment process implemented through the above documents.

Amendment description

In February 2018 and March 2018, Eclipse Soils submitted Licence amendment applications (DWER References CEO231/18 and CEO266/18) to increase the premises throughput, and also to include the acceptance of Class IV hydrocarbon/pesticide contaminated soils onto the premises and material meeting the former Health Investigation Levels (HIL-F) criteria for commercial/industrial premises as published in the guideline titled *Assessment levels for soils, sediment and water: Contaminated Sites Management Series* (Department of Environment and Conservation, February 2010) [now superseded].

As the licence was under appeal at that time, the amendment applications were placed on hold pending the outcome of the appeal (Appeal 13 of 2017). In addition, further information was required from Eclipse Soils in order for DWER to undertake an assessment of the proposed amendments. Following the determination of the appeal, DWER amended the licence in November 2018.

In February and March 2019 Eclipse provided additional information to support the amendment applications and as such the assessment process resumed.

Table H.1 below outlines the proposed changes to the Licence

Table H.1: Proposed design or throughput capacity changes

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
61A	100,000 tonnes per year	200,000 tonnes per year, inclusive of: - 1,000 tonnes per year of Class IV hydrocarbon and pesticide contaminated soils[1]; and - 50,000 tonnes per year of Class III hydrocarbon and pesticide contaminated soils[1]; and - 20,000 tonnes per year of Class I	The Licence holder seeks to increase the Cat 61A throughput to 200,000. The amendment also includes the addition of material meeting Class IV contaminant thresholds for bioremediation, and Class I contaminated soil for storage, blending and offsite reuse.

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
		contaminated soils[1,2] - 100,000 tonnes per year of ASS/PASS materials[1]	

Note 1: sub-limits to be imposed on waste acceptance conditions of the Licence
Note 2: : Eclipse are seeking authorisation to accept soil materials that meet the former Health Investigation Levels (HIL-F) criteria for Commercial/industrial premises as published in the guideline titled Assessment levels for soils, sediment and water: Contaminated Sites Management Series (Department of Environment and Conservation, February 2010) [now superseded). For the purposes of waste acceptance to be specified in the licence (Condition 1.2.1), DWER will limit the acceptance of material to soils that meet the definition of the 'Class I contaminated solid waste' (refer to Table 3 and 4 of the Landfill waste classification and waste definitions (April 2018)) [LWCWD]. Many of the contaminant criteria for metals and hydrocarbons as listed in Table 4 of the LWCWD are based on HIL-F criteria for commercial/industrial land.

Further detail on the proposed amendments is provided below:

Increase in combined waste throughput (annual):
Eclipse Soils propose to increase the premises throughput for Category 61A from 100,000 tonnes per year, to 200,000 tonnes per year. This increase is to allow for greater raw material inputs to be received on the premises to assist in maintaining production demands for their recycled fill and soil products.

Although the throughput for the premises' Category 61A activities will potentially double, the existing premises' plant and equipment will be utilised to process the material and no additional works or plant/infrastructure is required.

With regards to the acceptance of ASS/PASS material, Eclipse Soils have confirmed that they will limit acceptance to 100,000 t/pa, which is consistent with the existing waste acceptance conditions on the Licence. This equates to the highest volume which Eclipse Soils can currently accept, if ASS/PASS was the sole waste type received at the Premises, and which was previously assessed as acceptable. This is considered appropriate given the further groundwater investigations and potential improvements to related hardstand areas – refer to Condition 3.1.1.

A review of DWER's historic records does not provide for any odour or noise complaints from the premises in regards to current or past operating conditions. It is also noted that the nearest residential area is approximately 750m from the southernmost premises boundary. Therefore, whilst the potential for noise and odour emissions is increased with the increase to the premises throughput, the assessed risk for odour and noise emissions is considered to be medium risk.

Addition of Class IV contaminated soil material within approved waste acceptance criteria:
Eclipse Soils are seeking to add Class IV contaminated soils into the licence waste acceptance criteria, to allow for bioremediation of this material within the existing bioremediation cells. The bioremediation cells at Eclipse Soils have been in operation for approximately 10 years, treating up to 50,000 tonnes per year of hydrocarbon and pesticide contaminated soils. The amendment proposal is to accept up to 1,000 tonnes per year of Class IV contaminated soils affected by hydrocarbons or pesticides. The material is likely to be sourced from fuel truck rollovers, old service station remediation works or sites impacted by transformer oil.

Prior to acceptance the Class IV contaminated soil will be assessed to determine its suitability for bioremediation, with material not suitable for bioremediation not accepted at the site. Material that is considered suitable will be accepted and placed within the premises' existing bioremediation cells and processed under Eclipse Soils' *Management Plan for Bioremediation and Remediation of Hydrocarbon and Pesticide Containing Materials 2018* (Bioremediation Management Plan). This includes screening, material preparation and characterisation and treatment (bioremediation). Following bioremediation,

material is either used to generate blended soil products, or a soil product that meets the criteria for uncontaminated fill off site.

Odour and leachate are the main potential emissions of concern from this activity on the premises. While the material has the potential to generate additional odour on the premises due to the high hydrocarbon and pesticide content, it is noted that the volume proposed to be accepted (1,000 tonnes per year) is a very small percentage (~2%) of the premises' existing bioremediation material. In addition, the nearest sensitive receptor (residence), in Orelia, is approximately 1.5km south of the bioremediation area, and cross-gradient from the prevailing annual wind direction. To date, DWER has not received any complaints from the nearby residential area of Orelia related to odours from the composting or bioremediation activities being undertaken. Therefore, the potential for odour emissions is likely to be low and any increase to odour emissions can be managed and mitigated within the existing Bioremediation Management Plan to prevent offsite impacts.

There is the potential for leachate to be generated from the acceptance of Class IV hydrocarbon and pesticide contaminated soils at the premises. In this regard, the material proposed to be received will be received and bioremediated within the premises existing bioremediation cells. These cells have been constructed with a 350mm thick clay and limestone base, and are lined and bunded with a 1mm HDPE liner (Refer to Works Approval W4424/2018/1). Stormwater from the bioremediation pads is drained into two lined stormwater basins for evaporation. Existing licence conditions contain infrastructure requirements for the Bioremediation Area and the stormwater basins to ensure that leachate is collected and contained from the bioremediation process. These existing conditions are considered suitable to manage and mitigate leachate generated from the addition of this Class IV material.

Acceptance of treatable soil materials meeting Health Investigation Level (HIL- F) criteria:
Eclipse Soils propose to accept treatable materials meeting HIL-F industrial/commercial landuse criteria as previously published in the guideline titled *Assessment levels for soils, sediment and water: Contaminated Sites Management Series* (Department of Environment and Conservation, February 2010) [now superseded].

The proposal is to receive, store and treat this material within the same processing areas as is currently undertaken for Clean Fill on the premises – see Figure 1 below. The product is intended to be utilised for blending prior to reuse or resale offsite. The material is proposed to be received from brownfields developments and/or land development sites, with an estimated quantity of 10,000m^3 (20,000 tonnes) per year.

For the purposes of waste acceptance to be specified in the licence (Condition 1.2.1), DWER will limit the acceptance of related material to soils that meet the definition of the 'Class I contaminated solid waste' (refer to Table 3 and 4 of the *Landfill waste classification and waste definitions* (April 2018)) [LWCWD]. Many of the contaminant criteria (not inclusive) for metals and hydrocarbons as listed in Table 4 of the LWCWD are based on the former HIL-F criteria for commercial/industrial land (i.e. Class I = NEPM HIL-F)

Screening of this material is proposed to be undertaken to remove large pieces not suitable for blending. There is the potential for dust emissions to occur from this activity. Since 2006 DWER has received only one dust complaint regarding activities at this premises. On this occasion the activities were related to the extractive industry operations being undertaken by WA Limestone at the site. While the processing of this material has the potential to result in dust emissions, it is noted that volume is small (max. 10% of the total Cat 61A volume, equating to 20,000 t/pa) and the nearest sensitive receptor is approx. 750m from the premises' southern boundary. Any potential dust emissions from this activity are considered to be suitably managed under existing licence conditions for fugitive dust emissions (e.g. dust suppression via spinklers/water, stockpile heights and cessation of activities where these will impact sensitive receptors).

As depicted in Figure 1, depth to groundwater varies across the proposed storage and processing

areas. The purple shaded area depicts the base of the pit area which is situated adjacent the former landfill area (depicted by the yellow line) to the south and east, and which comprises an area with the smallest separation distance to groundwater being 3.5-4m below surface level.

Eclipse have indicated that they may not necessarily use all the proposed areas for processing or stockpiling clean fill and/or Class I soils, however, they would like to retain flexibility to avoid any possible space constraints with varying production and receival demands.

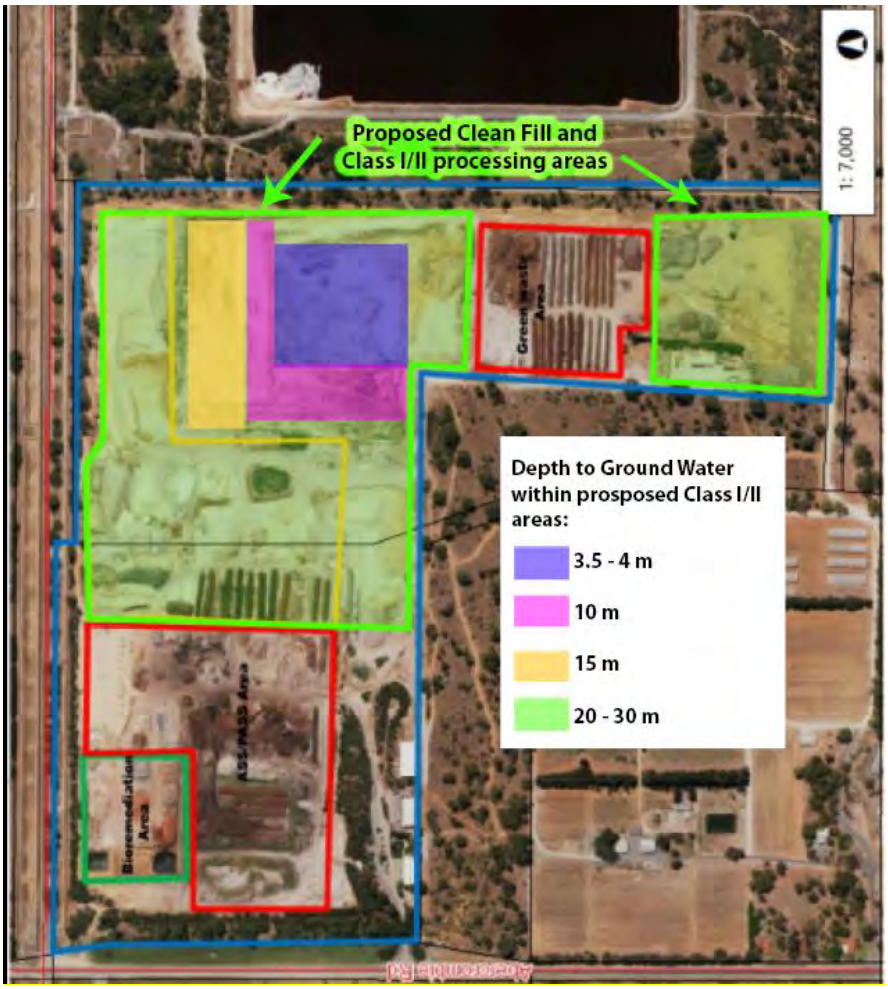


Figure 1: proposed processing areas for clean fill and class I contaminated soils.

Key findings:
The Delegated Officer notes that the contaminated sites guidelines referred to in the Application (DEC, February 2010) was updated/replaced in 2014 with the guideline titled *Assessment and management of contaminated sites – Contaminated sites guidelines* (Department of Environment Regulation, December 2014). The updated guideline takes into consideration revisions to the national site assessment framework provided in the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM) (amended April 2013).

Schedule B1 of the NEPM is comprised of guidelines on investigation levels for soil and groundwater. HILs have been updated as part of this revision, as has the nomenclature used for HIL criteria for commercial/industrial land use settings, and is now referred to as 'HIL D'.

Notwithstanding the revised NEPM, DWER will limit the acceptance of related material to soils that

meet the definition of the 'Class I contaminated solid waste' (refer to Table 3 and 4 of the LWCWD). Many of the contaminant criteria (not inclusive) for metals and hydrocarbons as listed in Table 4 of the LWCWD are based on the former HIL-F criteria for commercial/industrial land (Class I = former NEPM HIL-F.

DWER initiated amendments:

Condition 1.2.2 – removal of ambiguity around the management and removal of non-conforming waste types from site, which are inadvertently accepted, 'as soon as practicably possible'. New requirements quantify the timeframes required to remove the material off-site, to within '7 week days'.

Condition 1.2.8 – minor wording clarification relating to the former landfill area as specified in Schedule 1 of the Licence.

Condition 3.1.1 – Improvement Program (IC3); this condition required the removal of all waste, other than clean fill, to be removed from the area delineated in yellow on the Premises Map in Schedule 1. The timeframe to comply with this requirement was 20 February 2019. To date, no evidence has been provided to DWER to demonstrate that this requirement was met (DWER notes this information will be required as part of annual compliance reporting requirements – due end of July 2019, Condition 4.2.1). Further, condition 1.2.3 (Table 1.2.2) specifies storage and processing locations for all waste types authorised for acceptance onsite, thereby limiting where certain materials can be stored/processed on-site. Given this situation, DWER proposes to remove IC3 from Table 3.1.1, noting that existing controls are in place to ensure wastes are stored and processed in appropriate areas.

Risk assessment

The following table describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

May 2019 Licence amendment risk assessment

Table H.2: Risk assessment for proposed amendments during operation

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**				
Cat 61A Solid waste facility	Increase in throughput for Clean fill, ASS/PASS materials and Class III hydrocarbon and pesticide contaminated soils	**Noise** – emissions from the movement and operation of machinery and equipment	The nearest residential premises in Orelia is approx. 750m from the southern boundary	Air	Health and amenity impacts	Minor	Possible	Medium	While the premises throughput is proposed to be increased to 200,000tpa, no additional machinery or equipment is required to process this material. Therefore noise levels on the premises should remain the same, with the potential for the frequency to change. The risk of noise emissions impacting nearby receptors is assessed as 'medium'. Existing licence conditions and provisions of the Noise Regulations are considered suitable to manage noise emissions from the premises' operation.
		Odour – potential for odours to increase with the increase in throughput (ASS/PASS, and Class III hydrocarbon and pesticide contaminated soils)		Air		Moderate	Possible	Medium	There is the potential for odour emissions to increase with the increased throughput. DWER have not received any odour complaints for this premises, and the nearest sensitive resident is approx. 750m from the southern premises boundary away from the prevailing wind direction. The risk associated with the increased throughput has been assessed as 'medium'. Existing licence conditions are considered suitable to manage and mitigate potential odour emissions.

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
		Leachate – due to potential increase in throughput of ASS and PASS	Groundwater below the premises ranges from 11.5 to 20.5 metres below ground level (mbgl) in Lot 115 and from 20.5 to 26.5 mbgl on Lot 2, with these differences attributed to the varying contours of the premises topography.	Discharge to land	Potential for leachate to impact on underlying groundwater supplies	Major	Possible	High	There is the potential for leachate to increase from the addition of ASS/PASS on the premises, with the Cat 61A throughput proposing to be doubled to 200,000 tonnes per annum. Eclipse Soils have confirmed that they will limit acceptance to 100,000 t/pa which is consistent with the existing waste acceptance conditions on the Licence. This equates to the highest volume which Eclipse Soils can currently accept, if ASS/PASS was the sole waste type received at the Premises, and which was previously assessed and considered appropriate, subject to regulatory controls (pending further groundwater investigations and potential improvements to related hardstand areas – refer to Condition 3.1.1) Given the situation, DWER considers the proposal will not increase the current level of assessed risk. Existing licence conditions are therefore considered suitable to manage and mitigate potential leachate emissions.
		Leachate – due to potential increase in throughput of	Groundwater below the premises ranges from 11.5 to 20.5 metres	Discharge to land	Potential for leachate to impact on underlying	Major	Unlikely	Medium	Eclipse Soils have confirmed that they will limit acceptance to 50,000 t/pa

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
		Class III hydrocarbon and pesticide contaminated soils	below ground level (mbgl) in Lot 115 and from 20.5 to 26.5 mbgl on Lot 2, with these differences attributed to the varying contours of the premises topography.		groundwater supplies				The material will be received and bioremediated within the premises existing bioremediation cells which consists of two treatment cells that have been constructed with a base of 200mm clay and 150mm of crushed limestone and compacted to meet 1 x 10-9 m/s permeability. The cells are overlain by a 1.0mm high-density polyethylene (HDPE) liner and have been fully bunded with a 1% cross fall for drainage. The stormwater from these cells drain from a pipe to an HDPE lined stormwater basin which has been designed and constructed for a 1 in 5 year average recurrence interval (ARI) event. The bioremediation pads and stormwater basin were assessed as suitable infrastructure under works approval W4424/20081. Existing licence conditions contain infrastructure requirements for the Bioremediation Area and the stormwater basins to ensure that leachate is collected and contained from the bioremediation process.
	Addition of Class IV contaminated soil for bioremediation	**Odour** – potential for additional odour emissions from the receivable of Class IV	The nearest residential premises in Orelia is approx. 750m from the southern boundary	Air	Health and amenity impacts	Minor	Possible	Medium	The Licence Holder is proposing to accept up to 1,000 tonnes per year of this material, which accounts for ~ 2% of the bioremediation volume. Given the small volume of material and the distance to sensitive receptors, the potential impact offsite for this material is considered to present a 'medium' risk.

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
		material for bioremediation							Existing licence conditions are considered suitable to manage and mitigate potential odour emissions from this material.
		Leachate – potential for leachate to be generated from the Class IV material proposed to be received	Groundwater below the premises ranges from 11.5 to 20.5 metres below ground level (mbgl) in Lot 115 and from 20.5 to 26.5 mbgl on Lot 2, with these differences attributed to the varying contours of the premises topography.	Discharge to land	Potential for leachate to impact on underlying groundwater supplies	Major	Unlikely	Medium	There is the potential for leachate to be generated from the acceptance of 1,000tpa of Class IV hydrocarbon and pesticide contaminated soils. The material will be received and bioremediated within the premises existing bioremediation cells which consists of two treatment cells that have been constructed with a base of 200mm clay and 150mm of crushed limestone and compacted to meet 1 x 10^{-9} m/s permeability. The cells are overlain by a 1.0mm high-density polyethylene (HDPE) liner and have been fully bunded with a 1% cross fall for drainage. The stormwater from these cells drain from a pipe to an HDPE lined stormwater basin which has been designed and constructed for a 1 in 5 year average recurrence interval (ARI) event. The bioremediation pads and stormwater basin were assessed as suitable infrastructure under works approval W4424/20081. Existing licence conditions contain infrastructure requirements for the Bioremediation Area and the stormwater basins to ensure that leachate is collected and contained

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
									from the bioremediation process. These existing conditions are considered suitable to manage and mitigate potential leachate generated from the addition of this Class IV waste materials.
	Class I contaminated soil storage and processing	**Dust** – there is the potential for dust emissions to result from the processing and storage of this material on the premises.	The nearest residential premises in Orelia is approx. 750m from the southern boundary	Air	Health and amenity impacts	Minor	Possible	Medium	The licence holder is proposing to accept up to 20,000 tonnes of this material described as soil with, unavoidable low levels of metal, bricks, concrete etc. The material will be screened and stockpiled for storage on the premises prior to blending for re-use offsite. There is the potential for dust emissions to occur from these activities. However existing licence conditions to manage and mitigate dust emissions are considered suitable to address the 'medium' risk associated with the proposal. Conditions have been incuded to prevent the acceptance of waste containing visisble asbestos or ACM.
		Leachate – from storage and processing of Class I contaminated soils/wastes	Groundwater below the premises ranges from 11.5 to 20.5 metres below ground level (mbgl) in Lot 115 and from 20.5 to 26.5 mbgl on Lot	Discharge to land	Potential for leachate to impact on underlying groundwater supplies	Minor	Possible	Medium	Material proposed for acceptance is material that meets former HIL-F investigation criteria for industrial and commercial land use settings, and which is relatively consistent with Class I contaminant criteria for solid wastes as specified in the LWCWD i.e. material that is deemed suitable for disposal to

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
			2, with these differences attributed to the varying topography levels. Within the pit area (see Figure 1) groundwater is reported to be approximately 3-4m below surface levels.						unlined inert landfills (Class I contaminated soils) across the site. Noting that the site is not licensed as a landfill, given the nature and volume of material proposed for acceptance and processing, DWER considers the associated risks of leachate generation and impacts to groundwater to be minor; may present minor on-site impacts and low-level off-site impacts at the local scale and could occur at some time. Existing licence conditions are already in place to monitor potential impacts to groundwater from on-site activities. Should impacts be observed, additional investigations will be required to identify likely sources, which may require additional groundwater monitoring wells to be installed. No additional regulatory controls are required on the licence.

Decision

This amendment was submitted by the Licence Holder to increase the throughput of the Category 61A activities on the premises, including the addition of Class IV contaminated soil for bioremediation and Class I contaminated soil for blending and potential offsite reuse. Having considered the proposed amendment to the Licence, the Delegated Officer has determined that the increase to the premises throughput and addition of the small volume of Class IV and Class I contaminated soils will not result in emissions which are unacceptable to public health or the environment.

The existing licence contains conditions suitable to manage and mitigate any potential emissions from these amended activities on the premises. Waste acceptance criteria have been updated to reflect the changes to include Class I and Class IV material acceptance, limits and processing specifications.

The current licence expires in July 2020. At the time of licence renewal DWER intends to undertake a detailed risk review of the Licence to align the Licence with the risk based Regulatory Framework.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 6 May 2019. The Licence Holder responded on 8 and 9 May 2019 providing comment and waived the remaining comment period should their comments be considered and minor changes made – see below:

Condition	Summary of Licence Holder comment	DWER response
Condition 1.2.1 and Table 1.2.1	Specification for Class IV contaminated soil containing hydrocarbons and/or pesticides incorrectly refers to 'Class III'.	Typographical error noted. Specification updated to reflect 'Class IV'.
Condition 1.2.1 and Table 1.2.1	Limits on Class III material to be accepted should be set at 50,000 tonnes, as historically Eclipse has treated as much as this volume/tonnage.	Noted. Condition 1.2.1 and Decision Report updated to reflect.
Condition 1.2.2	Request that timeframes for the removal on non-conforming waste types, to be set to '7 week days'.	Noted. Condition 1.2.2 updated to reflect.
Condition 3.1.1	Improvement program – IC3, request that flexibility is provided to allow clean fill and class I soils to be stored in the area delineated by yellow on the Premises Map in Schedule 1.	Noted. IC3 removed from Condition 3.1.1. Decision report also updated to clarify that condition 1.2.3 (Table 1.2.2) specifies storage and processing locations for all waste types authorised for acceptance onsite, thereby limiting where certain materials can be stored/processed on-site.

Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Department initiated Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L8974/2016/2
Licence Holder	Eclipse Soils Pty Ltd
ACN	131 802 661
File Number	DER2016/000832-1
Premises	Abercrombie Road Resource Recovery Centre Abercrombie Road POSTANS WA 6167 Legal description – Lot 115 on Plan 48295 (Volume 2602, Folio 976) and Lot 2 on Plan 29392 (Volume 2219, Folio 775)
Date of Report	21 December 2020
Proposed Decision	Revised licence granted

MANAGER WASTE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the
Environmental Protection Act 1986 (WA)

Table of Contents

1. Decision summary 1

2. Scope of assessment 1

2.1 Regulatory framework 1

2.2 Amendment summary 1

2.2.1 Background 1

3. Risk assessment 4

3.1 Source-pathways and receptors 4

3.1.1 Emissions and controls 4

3.1.2 Receptors 6

3.2 Risk ratings 9

3.3 Detailed risk assessment for leachate emissions 11

3.3.1 Description of risk event 11

3.3.2 Identification and general characterisation of emission 11

3.3.3 Description of potential adverse impact from the emission 12

3.3.4 Criteria for assessment 19

3.3.5 Key findings 19

3.3.6 Consequence 19

3.3.7 Likelihood of Risk Event 20

3.3.8 Overall risk rating 20

3.3.9 Justification for additional regulatory controls 20

4. Consultation 22

5. Conclusion 22

5.1 Summary of amendments 22

References 24

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions 25

Table 1: Proposed controls 4

Table 2: Sensitive human and environmental receptors and distance from premises 6

Table 3. Risk assessment of potential emissions and discharges from the Premises during operation 10

Table 4: Groundwater indicator analysis 16

Table 5: Consultation 22

Table 6: Summary of licence amendments 22

Figure 1: Premises layout and current groundwater monitoring bore locations 5

Figure 2: Distance to sensitive receptors from the Premises. 8
Figure 3: Green waste area captured August 2019 12
Figure 4: ASS/PASS area (red polygon) captured August 2019 12
Figure 5: Groundwater bore network 15

1. Decision summary

Licence L8974/2016/2 is held by Eclipse Soils Pty Ltd (Licence Holder) for the Abercrombie Road Resource Recovery Centre (the Premises), located at Lot 115 on Plan 48295 and Lot 2 on Plan 29392, Postans.

This Amendment Report documents the assessment of potential risks to the environment and public health from potential emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L8974/2016/2 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Amendment summary

On 2 November 2020, the department initiated an amendment to Licence L8974/2016/2 to incorporate the following changes:

- Remove improvement program conditions IC1 and IC2 relating to the green waste and acid sulfate soils (ASS)/potential acid sulfate soils (PASS) areas on the Premises.
- Add new improvement conditions to the licence relating to the installation of two new groundwater monitoring bores.
- Amend the groundwater monitoring program to include the two new monitoring bores, change the sampling frequency from quarterly to six-monthly and change the parameters required for analysis.

This amendment was initiated following a request from the Licence Holder on 24 August 2020 asking DWER to consider removing IC1 and IC2 from the conditions in the licence and to change the groundwater monitoring frequency from quarterly to annually. The amendment was assessed as a DWER initiated amendment on the basis that the proposed amendments related to the outcome of a previous appeal determination as discussed in the following section.

During the amendment assessment process, DWER identified some additional minor changes to include in the scope of the licence amendment. The Delegated Officer considers that these changes do not affect the risk profile of the premises and therefore they were not included within the scope of the risk assessment. These amendments include:

- Expanding the ASS/PASS area specified in the Premises map in Schedule 1 of the Licence to include an area already being used for this purpose and which meets the required specifications for this infrastructure.
- Refining the asbestos monitoring method outlined in condition 19 of the Licence to better reflect the recommended sampling approach.
- Reinstating the approved waste acceptance rates which were specified in condition 1 of the Licence before a previous amendment dated 10 June 2020.

2.2.1 Background

The Premises was previously operated by Eclipse Resources Pty Ltd under licence

L7766/2001/5 for categories 61A, 63 and 67A. That licence expired on 27 April 2015.

Licence L8974/2016/2 was issued to the current Licence Holder on 28 March 2017. The Licence Holder lodged an appeal against the original licence conditions on 13 April 2017. The Licence Holder raised a number of objections to individual conditions relating to management and monitoring of emissions to groundwater, such as the location of storage and processing areas and infrastructure requirements.

The appeal was determined by the Minister for Environment on 21 May 2018 (Office of the Appeals Convenor, Appeal 13 of 2017). The Minister allowed the appeal in part. The aspects of the appeal which relate to this amendment are summarised in the following sections.

Green waste and ASS/PASS storage infrastructure

One of the matters addressed in the appeal was the inclusion of an improvement program in the licence relating to the green waste and ASS/PASS storage areas. The due date for the improvement was originally 28 May 2017. The improvement conditions were as follows:

- IC1: The Licence Holder shall submit to the CEO a report that assesses the permeability of the green waste area limestone pad and green waste stormwater basin. If the green waste area limestone pad or green waste stormwater basin does not achieve a hydraulic conductivity of 1 x 10^{-8} m/s or less, representative across the respective infrastructure, the Licence Holder is required to submit to the CEO a report outlining the steps and timeframes involved in meeting that specification.
- IC2: The Licence Holder shall submit to the CEO a report that assesses the permeability of the ASS/PASS Area limestone pad. If the ASS/PASS Area pad does not achieve a hydraulic conductivity of 1 x 10^{-8} m/s or less, representative across the respective infrastructure, the Licence Holder is required to submit to the CEO a report outlining the steps and timeframes involved in meeting that specification.

DWER's basis for the inclusion of the improvement program in the 2017 licence was that potential leachate emissions from the green waste and ASS/PASS areas presented a high risk to the receiving environment. This was informed by the following considerations:

- An assessment of the available groundwater dataset could not determine if previous on-site activities had impacted groundwater quality.
- The Licence Holder's main control for containing leachate emissions from green waste and ASS/PASS storage and processing was to undertake these activities on pads constructed of crushed and compacted limestone. The permeability of these pads was not known.

In their grounds for appeal, the Licence Holder submitted that:

- The department's ASS Guidelines (*Treatment and management of soil and water in acid sulfate soil landscapes*, 2015) do not specify a specific hydraulic conductivity but only that the treatment pad is 'appropriately low'.
- A requirement for the limestone pads (green waste and ASS/PASS) to meet a standard of 1 x 10^{-8} m/s is unnecessary and unachievable in practical terms with compacted limestone. It submitted that the environmental risks from receiving, storing, grinding and composting green waste do not justify the new requirements, and to achieve these requirements would require the installation of either a compacted clay hardstand (which in winter would be difficult to

traffic), or concrete/asphalt pads which would be prohibitively expensive.

In its response to the appeal, DWER stated that given the inconclusive nature of available groundwater monitoring results, it is reasonable to allow a period of 12 months increased (quarterly) groundwater monitoring to verify whether the high risk rating for leachate emissions is accurate, in advance of requiring any improvements in the infrastructure to be undertaken. In these circumstances, DWER recommended that the requirements to give effect to improvements to containment infrastructure could be deferred pending the results of the monitoring.

The Minister accepted DWER's advice that if additional groundwater monitoring demonstrates that the existing limestone pads used for green waste and ASS/PASS are of a sufficient permeability to mitigate impacts to groundwater, improvement requirements IC1 and IC2 may no longer be required to be met within the stipulated timeframes. The Minister therefore allowed the appeal to the extent that this outcome should be reflected in revised wording to IC1 and IC2.

Groundwater monitoring

In their appeal, the Licence Holder objected to the requirement to undertake groundwater monitoring at a quarterly frequency instead of the annual frequency which was specified on the previous premises licence L7766/2001/5. The Licence Holder submitted that water quality monitoring results over time had not demonstrated conclusively that activities on site resulted in unacceptable impacts on water quality and all controls for managing risks to acceptable levels applied to Eclipse Resources Pty Ltd since 2002 had been complied with.

In its response to the appeal, DWER stated that while water quality monitoring had not conclusively demonstrated that elevated concentrations and fluctuations in groundwater quality were attributable to site activities, the department considered that quarterly groundwater monitoring data remained necessary. This was to provide an accurate and reliable data set to verify the risk assessment in relation to emissions to groundwater and to assist in determining if the site activities are resulting in unacceptable impacts on groundwater. Quarterly monitoring results were considered necessary to understand any seasonal fluctuations in groundwater level and chemistry which may be attributable to natural processes and also to determine whether there are any seasonal 'flushes' of contaminants from the premises. These conclusions cannot be determined from an annual monitoring program.

DWER also stated that amendments to reduce the groundwater monitoring frequency and the range of parameters monitored may occur pending the results of the groundwater monitoring required under the Existing Licence.

In relation to groundwater monitoring, the Minister considered it appropriate for quarterly monitoring to be required for at least the first 12 months following this decision, for the reasons stated by DWER. Should those results confirm the original risk assessment, it is open to DWER to remove improvement requirements IC1 and IC2 and review the requirement to maintain quarterly monitoring.

2018 Licence amendment

On 20 November 2018, DWER amended the licence in accordance with the appeal determination. This amendment included an extension to the due date of IC1 and IC2 to 20 November 2020 to provide additional time for the Licence Holder to undertake further groundwater monitoring under the revised regime, review the results and provide them to DWER for review.

The quarterly groundwater sampling frequency was retained on the licence on an ongoing basis (without a specified end date). The Delegated Officer considered that this monitoring frequency was required to provide a more conclusive data set for

monitoring the potential impact of emissions on ambient groundwater quality given the potential high risk to the receiving environment.

Current situation

The Licence Holder conducted quarterly groundwater monitoring at the premises from July 2018 to April 2020 and provided the results of this monitoring to DWER in the form of two annual groundwater monitoring reports (Aurora Environmental 2020; Aurora Environmental 2019). The Licence Holder considers that the groundwater monitoring results demonstrate that the current limestone pads are adequate to mitigate emissions. The Licence Holder also requested that the groundwater monitoring frequency change from quarterly back to annually.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guidance Statement: Risk Assessments* (DER 2017).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway which have been considered in this Amendment Report are detailed in Table 1 below. Table 1 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary. The premises layout is shown in Figure 1.

Table 1: Proposed controls

Emission	Sources	Potential pathways	Proposed controls
Leachate and contaminated stormwater	Storage and processing of green waste Storage and treatment of ASS/PASS The green waste area and the ASS/PASS area are both used for the storage and processing/treatment of both green waste and ASS/PASS.	Seepage to soil and groundwater	Annual groundwater monitoring of four groundwater monitoring bores. ASS/PASS and green waste processing conducted on 300 mm thick compacted crushed limestone pads which are bunded on all sides and graded towards clay lined sumps to collect any surface water. ASS is neutralised immediately upon receipt.



Figure 1: Premises layout and current groundwater monitoring bore locations

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the applicant from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation.

Table 2 and Figure 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guidance Statement: Environmental Siting* (DER 2016)).

Table 2: Sensitive human and environmental receptors and distance from premises

Human receptors	**Distance from premises boundary**
Agricultural research station owned and operated by the Department of Primary Industries and Regional Development at 60 Abercrombie Road.	Caretaker residence located approximately 360 m from southern boundary of Lot 115 and 595 m from the western boundary of Lot 2. The station has been closed and the caretaker's residence unoccupied for over 5 years according to information provided by the Licence Holder.
Residential receptors	No residential receptors were identified down hydraulic gradient of the premises.
Recreational receptors	There is an area zoned for parks, recreation and drainage located down hydraulic gradient of the premises, about 780 m to the west.
Commercial and industrial receptors	There are a number of commercial/industrial receptors located down hydraulic gradient of the premises in Postans, Kwinana Beach, Naval Base and the Hope Valley-Wattleup Redevelopment Area. The closest of these is WA Limestone, located on the opposite side of Abercrombie Road, immediately west of the premises.
Environmental receptors	**Distance from prescribed activity**
Groundwater	Based on monitoring undertaken at the premises, the depth to the water table of the superficial aquifer ranges from about 13 m below ground level (BGL) on the western and southern premises boundaries to 18-19 m BGL on the eastern and northern premises boundaries. The surface geology and superficial aquifer at the premises are within the Tamala Limestone formation. This formation contains solution channels and cavities, particularly in the zone where the water table fluctuates, and in some areas has karst structures (Davidson and Yu 2008). The hydraulic conductivity of the Tamala Limestone is highly variable. Areas with solution channels and cavities record the highest values but on a regional scale the hydraulic conductivity is mostly influenced by low conductivity beds or sandy facies (Davidson and Yu, 2008). Areas with tightly cemented siliceous materials may be almost impermeable. Based on the Perth Groundwater Map, the regional groundwater flow direction is west north-west, towards Cockburn Sound. Aurora Environmental (2020) report that relative groundwater levels measured during quarterly monitoring indicate that local groundwater flow on the premises is to the west south-west. Two of the monitoring bores used to determine groundwater flow direction on the premises are sited within 100 m of abstraction bores

	operated by the Licence Holder. Groundwater flow in close proximity to these bores may be affected by drawdown from abstraction, however the extent of their respective capture zones within the premises area is unknown. The Delegated Officer considers that the regional groundwater flow direction to the west north-west is the most reliable representation of potential contaminant transport pathways from the premises. However, the localized influences from groundwater abstraction also require consideration when interpreting groundwater monitoring data. The premises is within the Cockburn Groundwater Area which is a proclaimed area under the *Rights in Water Irrigation Act 1914.* Groundwater in the superficial aquifer below the premises is fresh to brackish. The main beneficial use of the superficial aquifer in the vicinity and down hydraulic gradient of the premises is non-potable use for irrigation, dust suppression and industrial purposes. There are more than ten groundwater licences located down hydraulic gradient of the premises. Shallow groundwater may also support groundwater dependent ecosystems of the Swan Coastal Plain including wetlands (see below) and groundwater dependent vegetation such as shrubland scrub heath and tuart woodlands.
Geomorphic Wetlands of the Swan Coastal Plain	The following wetlands were identified as potentially down hydraulic gradient of the premises: - Unnamed resource enhancement basin dampland – 1.8 km north-west The following wetlands were identified as likely to be cross hydraulic gradient of the premises: - Unnamed resource enhancement basin dampland – 760 m north north-west - Unnamed multiple use basin dampland – 870 m north north-west - Long Swamp, conservation basin sumpland – 1.3 km north - Unnamed resource enhancement basin sumpland – 2.9 km north-west
Surface water	No hydrological features were identified directly down hydraulic gradient of the premises. One hydrological feature coinciding with Long Swamp wetland was identified 1.3 km north which is considered cross hydraulic gradient of the premises.
State Environment Policy Cockburn Sound Policy Boundary	The premises is within this area and is located about 3.4 km from the Cockburn Sound coastline.
Threatened and Priority Ecological Communities	The premises is within the 500 m buffer area for the following communities: - Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain – mapped areas within the premises boundary and additional areas to the north, south and south-west. - *Melaleuca huegelii – Melaleuca systena* shrublands on limestone ridges – mapped area about 140 m north. - Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region – mapped area about 180 m north-east.

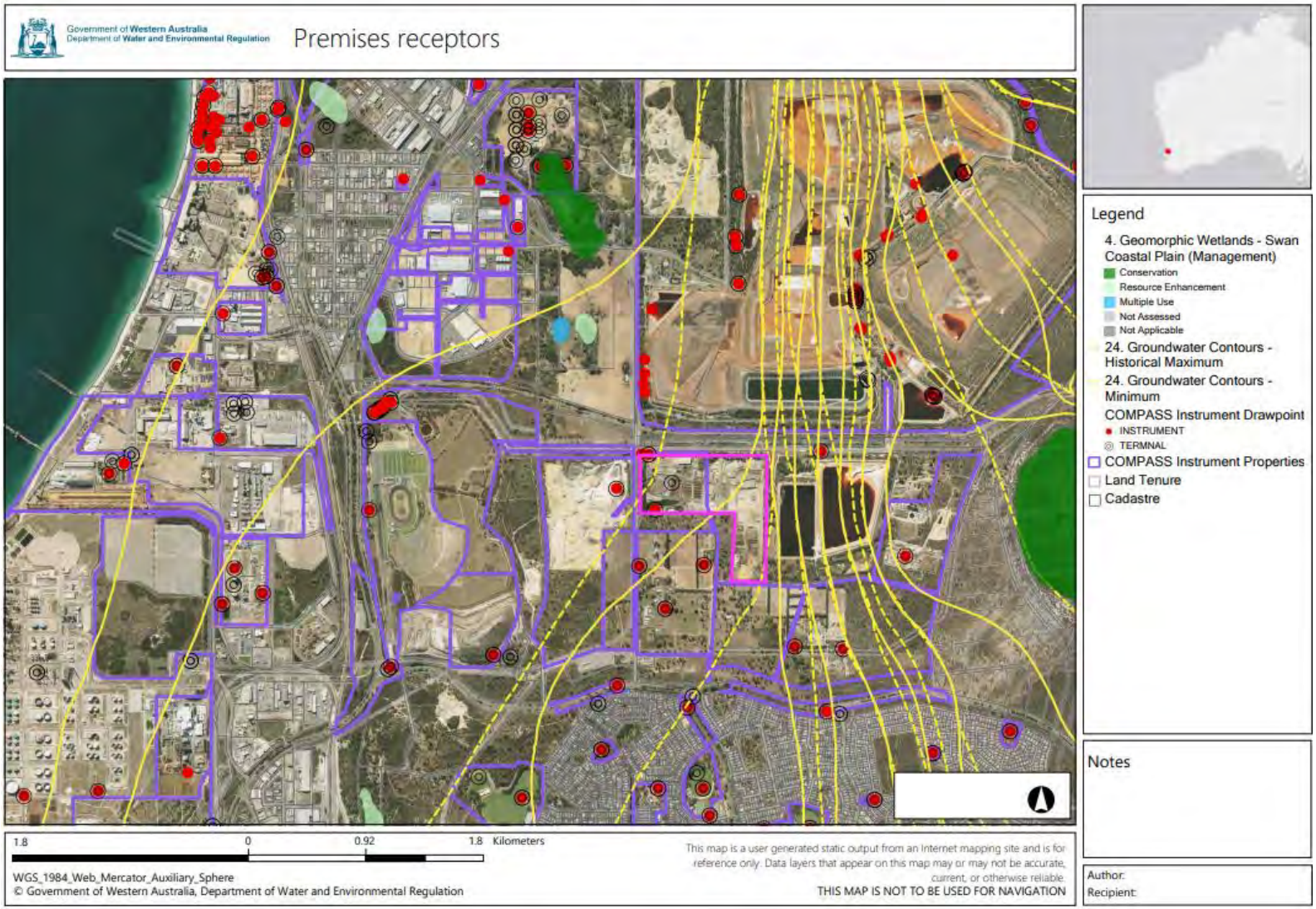


Figure 2: Distance to sensitive receptors from the Premises.

The premises boundary is shown by the pink line. Purple lines show sites with groundwater licences, red dots show groundwater licence drawpoints and yellow lines show the historical maximum (solid) and minimum (dashed) superficial aquifer groundwater contours from the Perth Groundwater Map. Threatened ecological communities are not shown.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for existing emission sources related to the storage and processing of green waste and the storage and treatment of ASS/PASS and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the Licence Holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

The Revised Licence L8974/2016/2 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. category 61A and category 67A activities.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 3. Risk assessment of potential emissions and discharges from the Premises during operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Storage and processing of green waste Storage and treatment of ASS/PASS	Leachate and contaminated stormwater	Seepage to soil and groundwater and migration down hydraulic gradient Deterioration of groundwater quality	Non-potable groundwater users down hydraulic gradient	Refer to Section 3.1.1	<u>Green waste</u> C = Minor L = Likely **Medium Risk** (refer to Section 3.3) <u>ASS/PASS</u> C = Minor P = Possible **Medium Risk** (refer to Section 3.3)	*N*	*Condition 1, 3, 6,* ***<u>18, 21, 22, 28</u>***	Refer to Section 3.3.9
			Groundwater dependent wetlands 1.8 km down hydraulic gradient		Incomplete source-pathway-receptor linkage due to 1.8 km distance to closest down hydraulic gradient wetland.			
			Cockburn Sound marine environment		Incomplete source-pathway-receptor linkage due to 3.4 km distance to coast and Cockburn Sound.			

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **<u>Bold and underline text</u>** depicts additional regulatory controls imposed by department.

3.3 Detailed risk assessment for leachate emissions

3.3.1 Description of risk event

Leachate is generated during composting of green waste and through the interaction of stormwater with green waste and ASS/PASS stored in the green waste and ASS/PASS storage areas. The Existing Licence allows these areas to be used interchangeably, both green waste and ASS/PASS may be stored and processed/treated in the green waste area or the ASS/PASS area.

Where processing infrastructure does not adequately capture leachate and stormwater, or is not constructed to achieve a sufficiently low permeability, leachate will seep into soil and migrate through the unsaturated zone to the superficial aquifer. Contaminants associated with green waste and ASS/PASS may degrade groundwater quality and have the potential to impact down gradient groundwater users.

3.3.2 Identification and general characterisation of emission

Decomposition of green waste during composting leads to the generation of leachate. This process is enhanced through the irrigation of materials undergoing composting to maintain moisture and achieve dust suppression. During and following rainfall, rain and stormwater interact with green waste and may entrain contaminants associated with the waste. Contaminants associated with green waste may include nutrients, metals, high biological oxygen demand (BOD) and organic compounds such as phenols and terpenes. The Licence Holder adds nitrogen in the form of urea and iron in the form of iron sulfate to green waste during composting, these additives may also affect leachate and stormwater generated during green waste storage and processing.

The two areas on which green waste is stored and processed (green waste area and ASS/PASS area) comprise 300 mm thick compacted limestone pads which are bunded by 300 mm high crushed limestone. The Delegated Officer considers that this type of pad surface is not likely to provide an adequate barrier to the infiltration of contaminants in leachate and stormwater emissions associated with green waste at the premises.

The Existing Licence requires that all runoff and leachate from green waste storage, mulching and composting areas are directed to a stormwater basin which is constructed of at least 300 mm thick compacted limestone and retains a 300 mm embankment freeboard. The Licence Holder's correspondence dated 24 August 2020 indicates that the green waste and ASS/PASS pads are graded towards clay lined sumps. One sump is located in the north-western corner of the green waste area (Figure 3) and two sumps are present along the southern boundary of the ASS/PASS area (Figure 4). The volume, liner specifications and permeability of these sumps are not known. The likelihood of leachate and contaminated stormwater emissions occurring via seepage from these sumps is not known.

Interaction of stockpiled ASS/PASS with water from irrigation, rain and stormwater has the potential to generate leachate with hydrochemical characteristics and contamination associated with ASS. Leachate from ASS/PASS is likely to be acidic and contain elevated concentrations of sulfate. The interaction of acidic leachate with stockpiled soils also has the potential to mobilise metals such as arsenic, aluminium and iron. Treatment of ASS/PASS is undertaken at the premises using aglime, limestone or lime sand.

The two areas on which ASS/PASS is stored and treated (green waste area and ASS/PASS area) comprise 300 mm thick compacted limestone pads which are bunded by 300 mm high crushed limestone. Although this type of pad surface may not provide an adequate physical barrier to prevent infiltration, its chemical composition will have a neutralising effect on acidic leachate and stormwater emissions.



Figure 3: Green waste area captured August 2019

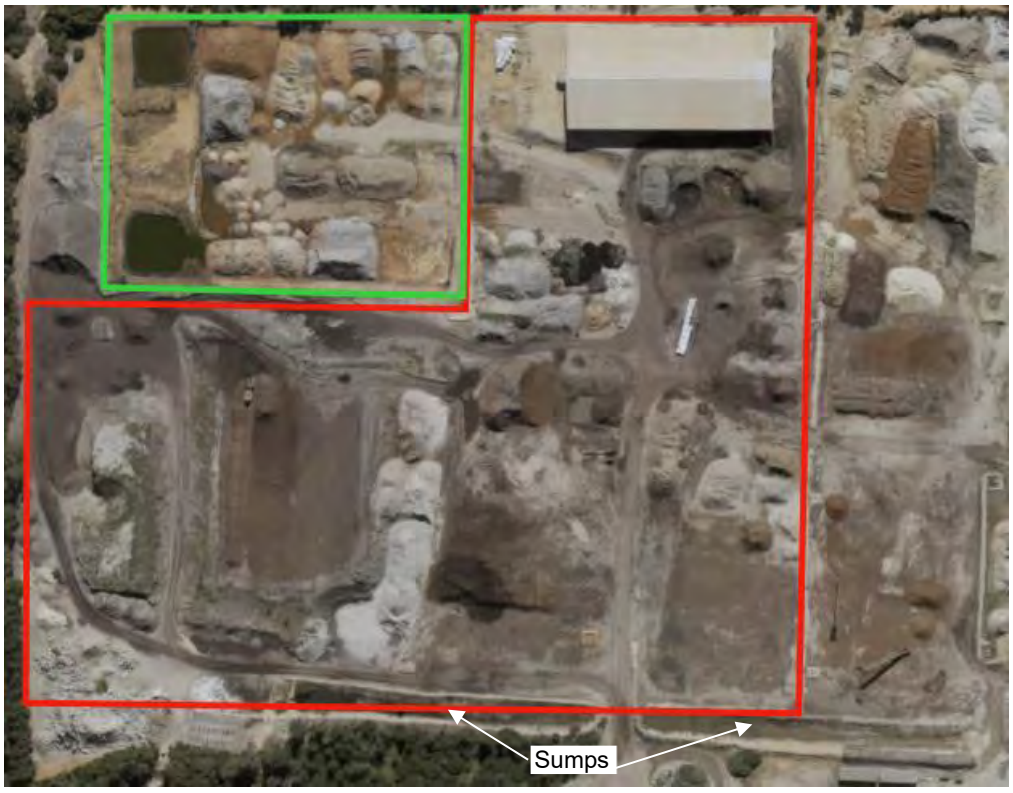


Figure 4: ASS/PASS area (red polygon) captured August 2019

3.3.3 Description of potential adverse impact from the emission

Infiltration of contaminated leachate has the potential to degrade soil and groundwater quality of the superficial aquifer. Soil beneath the premises may become impacted through the

accumulation of contaminants in the unsaturated zone. Contaminants which are transported to the superficial aquifer may impact the beneficial use of groundwater for non-potable purposes down hydraulic gradient from the premises.

Although leachate from ASS/PASS is likely to be acidic, the immediate neutralization of soils with alkaline materials (Aglime) will ensure that any acid generated is effectively neutralised. Additionally the buffering capacity of the limestone pad and natural limestone soils underlying the premises are likely to mitigate the low pH of leachate before it enters the superficial aquifer. There is also the potential for some contaminants to undergo attenuation within the superficial aquifer. The eventual fate of shallow groundwater migrating from the premises is likely to be discharge to the Cockburn Sound marine environment about 3.4 km to the west or extraction from one of the licensed groundwater production bores between the premises and the coast (Figure 2). Shallow groundwater may also be taken up by groundwater dependent vegetation or discharged to the basin dampland 1.8 km north-west of the premises.

The Delegated Officer reviewed the 2018-2019 and 2019-2020 quarterly groundwater monitoring reports for the premises which were both prepared by Aurora Environmental. Parameters which are considered potential indicators of seepage of leachate or contaminated stormwater from green waste and ASS/PASS areas were reviewed to determine whether there is evidence that groundwater has been impacted. The findings of this review are summarised in Table 4. A map of the groundwater monitoring network is provided in Figure 5.

The Delegated Officer considers that the following parameters may provide evidence that leachate from the green waste and ASS/PASS areas has impacted groundwater below the Premises:

- Lower values of alkalinity : sulfate at ARMB5 and ARMB6A than background bore ARMB1. Potential reasons for this include an additional source of sulfate at these bores or a reduction in alkalinity caused by acidic inputs.
- Elevated concentrations of nitrogen (total nitrogen, total oxidised nitrogen and/or ammonia) at ARMB5 and ARMB6A compared to the background bore ARMB1.
- Elevated concentrations of arsenic at ARMB2, ARMB5 and ARMB6A compared to the background bore ARMB1.
- Elevated concentrations of iron at ARMB2 and ARMB6A compared to the background bore ARMB1.
- Elevated concentrations of manganese at ARMB2 and ARMB6A compared to the background bore ARMB1.

During the review, the Delegated Officer identified some remaining sources of uncertainty in the current understanding of groundwater impacts from green waste and ASS/PASS areas. These are summarised as follows:

- The impact of groundwater abstraction on local groundwater flow beneath the premises is not well understood which means there is uncertainty about which monitoring bores are down hydraulic gradient from the green waste and ASS/PASS areas. Aurora Environmental (2020) asserted that superficial groundwater flows in a west-south-westerly direction below the site which they attribute to the abstraction bore on the site pulling groundwater in a southerly direction. However, given the high hydraulic conductivity and transmissivity of groundwater, this may not be a reasonable assumption in the absence of other supporting evidence or data. To provide a conservative assessment of groundwater data, the review was conducted assuming that ARMB2, ARMB5 and ARMB6A may all be down hydraulic gradient from the green waste and ASS/PASS areas.
- The top of the screened interval in ARMB2 occurs about 13 m below the water table which means this monitoring bore does not sample the part of the superficial aquifer

which is most likely to be affected by contamination. ARMB5 and ARMB6A are both screened across the water table.

- There is no groundwater monitoring bore sited immediately down hydraulic gradient of the green waste area. It is therefore not possible to assess whether leachate emissions in this area have impacted groundwater.
- There are a number of potential contaminant sources present in close proximity to the premises. ARMB1 is considered up hydraulic gradient from the premises and has been used to determine background groundwater quality for comparison to monitoring data from ARMB2, ARMB5 and ARMB6A. However, there is the potential that on-site groundwater abstraction near the northern and southern premises boundaries in the west of the premises could draw groundwater which has been impacted by off-site sources onto the premises. The existing groundwater monitoring network is too limited to allow a definitive assessment between on-site and off-site contaminant sources.

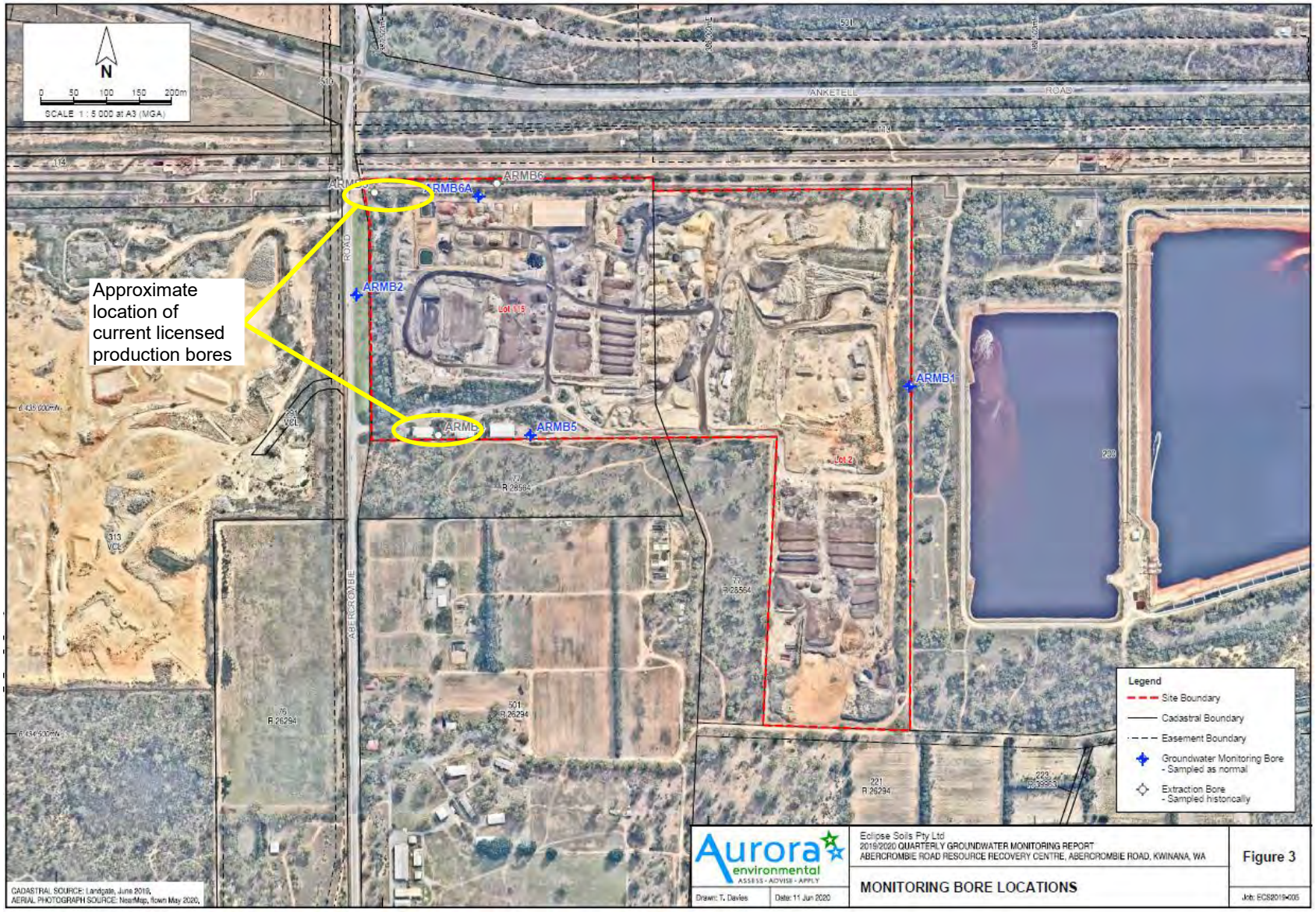


Figure 5: Groundwater bore network

Licence L8974/2016/2

Table 4: Groundwater indicator analysis

Parameter	Purpose	Summary of results	Exceedances of consequence criteria
pH	Detect seepage of acidic leachate	ARMB2, ARMB5 and ARMB6A have a consistently near neutral pH in the range of 6.5 to 8.2 based on 2018 to 2020 data. Monitoring data does not indicate that groundwater has been impacted by acidic leachate.	No applicable criteria based on the Non-Potable Use Guidelines (NPUG)
alkalinity	Detect hydrochemical changes caused by seepage of acidic leachate	Alkalinity in groundwater is consistently above 80 mg/L as $CaCO_3$. DER (2015b) indicates that this high level of alkalinity generally provides an adequate buffering capacity to maintain an acceptable pH in the future. ARMB2 and ARMB5 recorded lower alkalinity concentrations (120-250 mg/L) compared to ARMB1 and ARMB6A (320-560 mg/L).	
alkalinity : sulfate	Detect seepage of sulfate source such as oxidised ASS or iron sulfate additive to green waste	DER (2015b) indicates that an alkalinity: sulfate ratio of less than 5 may indicate that groundwater is or has been affected by the oxidation of sulfides. Background bore ARMB1 recorded ratios from 5 to 7. ARMB5 and ARMB6A generally recorded lower ratios from 2 to 5. ARMB2 recorded variable ratios, both above and below the threshold ratio of 5.	
total nitrogen	Detect seepage of nitrogen source such as urea additive or nutrients naturally present in green waste	Background bore ARMB1 recorded concentrations from 0.9 to 2.3 mg/L. ARMB2 recorded a similar range of concentrations. ARMB5 and ARMB6A recorded significantly higher concentrations, ranging from 6.9 to 11 mg/L at ARMB5 and 8 to 51 mg/L at ARMB6A. The maximum concentration of 51 mg/L at ARMB6A was recorded in January 2019 and concentrations have since reduced to 21 mg/L in April 2020. Ammonia is the main form of nitrogen detected in groundwater at ARMB6A. Concentrations at ARMB5 are relatively consistent over time. Total oxidised nitrogen is the main form of nitrogen detected in groundwater at ARMB5.	

Parameter	Purpose	Summary of results	Exceedances of consequence criteria
ammonia	Detect seepage of nitrogen source such as urea additive or nutrients naturally present in green waste	Background bore ARMB1 recorded ammonia (as N) concentrations from 0.88 to 1.9 mg/L. ARMB2 and ARMB5 generally recorded similar or lower concentrations. ARMB6A recorded significantly higher concentrations, ranging from 7.5 to 36 mg/L. The maximum concentration of 36 mg/L at ARMB6A was recorded in July 2018 and concentrations have since reduced to 21 mg/L in April 2020.	NPUG – 0.4 mg/L (as N) - ARMB1 and ARMB6A consistently exceeded this guideline - ARMB2 recorded one exceedance of this guideline in October 2017
total phosphorus	Detect seepage of phosphorus source such as green waste	Concentrations in groundwater ranged from 0.01 to 0.18 mg/L. ARMB2, ARMB5 and ARMB6A did not generally record higher concentrations than the background bore ARMB1.	No applicable criteria based on the NPUG
aluminium	Detect seepage of leachate containing metals or hydrochemical changes caused by seepage of acidic or high organic content (low BOD) leachate	Detected in the background bore ARMB1 once in January 2020. ARMB2 and ARMB6A did not generally record higher concentrations than the background bore. ARMB5 recorded two concentrations which were higher than the maximum detection in the background bore, these occurred in October 2018 and January 2020.	NPUG – 0.2 mg/L - ARMB5 recorded one exceedance of this guideline in January 2020
arsenic		Background bore ARMB1 generally recorded non-detections or very low concentrations. ARMB2, ARMB5 and ARMB6A recorded regular detections of arsenic, with ARMB6A recording significantly higher concentrations (0.007 to 0.17 mg/L) than the background and other down gradient bores. The maximum concentration of 0.17 mg/L at ARMB6A was recorded in February 2014 and concentrations have since reduced to 0.014 mg/L.	NPUG – 0.1 mg/L - ARMB6A recorded exceedances of this guideline between 2012 and 2015 but concentrations have since reduced to below the guideline
chromium		Background bore ARMB1 recorded non-detections and concentrations up to 0.002 mg/L. ARMB5 and ARMB6A generally recorded a similar range of concentrations as the background bore. ARMB2 did not record any detections.	NPUG – 0.5 mg/L (Cr VI) - No exceedances
copper		Background bore ARMB1 recorded non-detections and concentrations up to 0.009 mg/L. ARMB2, ARMB5 and ARMB6A generally recorded a similar range of concentrations as the background bore.	NPUG – 20 mg/L - No exceedances

Parameter	Purpose	Summary of results	Exceedances of consequence criteria
iron	Detect seepage of leachate containing metals or hydrochemical changes caused by seepage of acidic or high organic content (low BOD) leachate	Background bore ARMB1 recorded non-detections and concentrations up to 0.41 mg/L. ARMB5 generally recorded a similar range of concentrations as the background bore. ARMB2 and ARMB6A recorded higher concentrations, ranging from 0.1 to 2.9 mg/L at ARMB2 and 0.69 to 5.3 mg/L at ARMB6A. The maximum concentration of 2.9 mg/L was recorded at ARMB2 in October 2017 and concentrations have since reduced to 0.42 mg/L. The maximum concentration of 5.3 mg/L was recorded at ARMB6A in April 2019 and concentrations have since reduced to 2 mg/L in April 2020.	NPUG – 0.3 mg/L - ARMB2 and ARMB6A recorded regular exceedances - ARMB1 and ARMB5 recorded one exceedance in January 2020
manganese		Background bore ARMB1 recorded non-detections and concentrations up to 0.03 mg/L. ARMB5 recorded lower concentrations than the background bore. ARMB2 and ARMB6A recorded higher concentrations, ranging from 0.03 to 0.1 mg/L at ARMB2 and 0.05 to 0.37 mg/L at ARMB6A. Concentrations at ARMB2 have been relatively consistent over time. The maximum concentration of 0.37 mg/L was recorded at ARMB6A in February 2014 and concentrations have since reduced to 0.1 mg/L in April 2020.	NPUG – 5 mg/L - No exceedances
mercury		Mercury was not detected above the limit of reporting (LOR) at ARMB1 and ARMB5. Mercury was detected at a concentration equal to the LOR in October 2012 at ARMB2 and in July 2018 at ARMB6A.	NPUG – 0.01 mg/L - No exceedances
nickel		ARMB1, ARMB2 and ARMB5 generally recorded non-detections or very low concentrations (up to 0.002 mg/L). ARMB6A recorded higher concentrations ranging from 0.001 to 0.005 mg/L which were relatively consistent over time.	NPUG – 0.2 mg/L - No exceedances
zinc		Monitoring bores generally recorded non-detections with some irregular detections of zinc up to 0.017 mg/L with no clear differences between the background bore ARMB1 and other bores ARMB2, ARMB5 and ARMB6A.	NPUG – 3 mg/L - No exceedances
cadmium, lead and selenium		Monitoring bores generally recorded non-detections or very low concentrations up to 0.003 mg/L with no clear differences between the background bore ARMB1 and other bores ARMB2, ARMB5 and ARMB6A.	NPUG – (0.02, 0.1 and 0.1 mg/L respectively) - No exceedances

3.3.4 Criteria for assessment

Based on the environmental siting, relevant groundwater assessment criteria are the Non-Potable Use Guidelines (Department of Health 2014) as outlined in the guideline *Assessment and Management of Contaminated Sites* (DER 2014).

3.3.5 Key findings

The Delegated Officer has reviewed the information regarding leachate emissions and has found:

1. The compacted limestone pads are unlikely to provide a long-term leachate barrier which minimises infiltration of contaminants associated with green waste leachate to soil and groundwater. The compacted limestone pads are likely to have a neutralising effect on acidic leachate which may be generated in association with ASS/PASS storage.
2. It is unknown whether the liners of the green waste and ASS/PASS area sumps provide a barrier to infiltration of leachate and contaminated stormwater.
3. Leachate and stormwater associated with green waste and ASS/PASS may contain elevated concentrations of nutrients, sulfate, metals, BOD and organic compounds.
4. The main receptors of significance to groundwater contamination which migrates down hydraulic gradient of the premises are groundwater users. Groundwater in this area is used for non-potable purposes including irrigation, dust suppression and industrial processes.
5. No wetlands of 'conservation' status are located down hydraulic gradient of the premises. There is one wetland of 'resource enhancement' status which is down hydraulic gradient and about 1.8 km from the premises. Due to its distance from the premises this wetland is not considered a receptor of significance.
6. Cockburn Sound is not considered a receptor of significance. This is based on it being 3.4 km from the premises and the potential contaminant loading resulting from leachate infiltration from green waste and ASS/PASS storage and processing areas being minor compared to other sources.
7. Groundwater in monitoring bores which may be down hydraulic gradient from the premises shows changes in quality compared to the background bore on the premises' eastern boundary. The observed impacts could be a result of leachate seeping to groundwater from the green waste and ASS/PASS areas. However, due to a number of sources of uncertainty it is not possible to determine the source of the observed impacts.
8. There are deficiencies in the current groundwater monitoring network which limit its capacity to rapidly detect impacts associated with on-site activities. This includes the lack of a groundwater monitoring bore directly down hydraulic gradient from the green waste area and ARMB2 not being screened across the water table which is the part of the aquifer which is most vulnerable to contamination.

3.3.6 Consequence

If infiltration of leachate occurs, then the Delegated Officer has determined that the Consequence Criteria (for public health) for groundwater of the Non-Potable Use Guidelines

(NPUG) are likely to be met.

Regular and ongoing exceedances of the NPUG criteria for iron and ammonia have been recorded at some bores. However, the Delegated Officer considers that these exceedances are not directly relevant to this risk assessment for the following reasons:

- The iron NPUG criterion is based on an aesthetic drinking water quality guideline set to avoid precipitation of iron. It is common for Perth groundwater to contain elevated concentrations of iron but for groundwater to be extracted and used for non-potable purposes anyway. The risk of iron precipitation (bore-related staining) does not preclude its use for non-potable purposes.
- The ammonia NPUG criterion is based on an aesthetic drinking water quality guideline set to avoid corrosion of copper pipes. Background groundwater quality at the premises (ARMB1) reports concentrations of ammonia above this criterion, although the concentrations of ammonia in ARMB6A are significantly higher than those in the background bore. The exceedance of the NPUG criterion indicates a potential aesthetic risk related to pipe damage rather than a human health risk related to non-potable groundwater use.

Exceedances of the NPUG criteria for aluminium and arsenic have also been recorded in ARMB5 and ARMB6A respectively. Only one aluminium exceedance occurred at ARMB5 in January 2020. Arsenic exceedances at ARMB6A occurred between 2012 and 2015 but have since reduced to below the guideline value.

Therefore, the Delegated Officer considers the consequence of leachate infiltration to be **Minor**.

3.3.7 Likelihood of Risk Event

The Delegated Officer has determined that contaminants associated with green waste leachate will probably infiltrate to groundwater in most circumstances. Therefore, the Delegated Officer considers the likelihood of this Risk Event to be **likely**.

The Delegated Officer has determined that contaminants associated with ASS/PASS leachate could infiltrate to groundwater at some time. Therefore, the Delegated Officer considers the likelihood of this Risk Event to be **possible**.

3.3.8 Overall risk rating

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix in the *Guidance Statement: Risk Assessments* and determined that the overall rating for the risk of this Risk Event is **medium**.

3.3.9 Justification for additional regulatory controls

The Delegated Officer has determined that improvement requirements IC1 and IC2 can be removed from the licence. Based on this outcome, changes to the groundwater monitoring program are required as an additional regulatory control to the conditions in the Existing Licence and the controls proposed by the Licence Holder. The Delegated Officer has made this determination because:

- There are remaining uncertainties and data gaps in the current understanding of groundwater impacts from the premises.
- The compacted limestone pads are considered unlikely to prevent contaminants in leachate and stormwater emissions associated with green waste storage and processing from infiltrating to groundwater. A robust groundwater monitoring program is needed for DWER to monitor potential future impacts and ensure that receptors are not exposed to unacceptable risks.

Changes to the monitoring program are summarised in the following sections.

Monitoring frequency

The groundwater sampling frequency will be reduced from quarterly to six-monthly. The Licence Holder requested that the frequency be reduced to annual. The Delegated Officer considers that six-monthly groundwater monitoring is necessary to provide a more comprehensive dataset and capture potential seasonal changes in groundwater quality.

Groundwater monitoring network

The following changes to the groundwater monitoring network are proposed:

- Removal of ARMB2 from the bore network, this is a DWER owned bore located outside of the premises boundary. While this bore is sited in an area which is considered likely to be down hydraulic gradient from the ASS/PASS area, it is not screened across the water table which is the part of the aquifer which is most vulnerable to contamination. The top of the screened interval occurs at about 13 m below the water table which means it samples a deeper part of the superficial aquifer than other monitoring bores on the premises. Based on these considerations, ARMB2 is not considered suitable to provide early detection of potential groundwater impacts from the premises or for direct comparison to groundwater quality results from other bores.
- Addition of a new monitoring bore ARMB7. The purpose of this bore is to replace ARMB2 as a down gradient bore on the western premises boundary. ARMB7 is to be screened across the water table and will be located within the premises boundary and closer to premises activities than ARMB2.
- Addition of a new monitoring bore ARMB8. The purpose if this bore is to monitor groundwater quality down gradient from the green waste area in the south of the premises. There is currently no groundwater monitoring bore at this location and the potential impacts of green waste processing in this area was identified as a data gap in DWER's review of 2018-2020 quarterly groundwater data. Installation of this new bore will also help to achieve a better understanding of groundwater flow directions below the premises which was another data gap identified by DWER.

Groundwater analytical suite

The following changes to the groundwater analytical suite will be made:

- Addition of the following monitoring parameters:
    - Redox potential and dissolved oxygen – These parameters provide an indication of general water quality and are already being analysed in the field during groundwater sampling events.
    - Sodium, calcium and magnesium – Addition of these cations means the groundwater analytical suite will include all major ions which will allow additional hydrochemical analytical tools to be used to interpret groundwater in the future.
    - Nitrate, nitrite and Total Kjeldahl Nitrogen – Concentrations of total nitrogen are elevated in some of the monitoring bores at the premises. Addition of these nitrogen species to the analytical suite will allow an improved understanding of nitrogen impacts to groundwater.
    - Biochemical oxygen demand – Leachate from green waste may have a high biochemical oxygen demand. This parameter will provide additional information about general water quality and potential groundwater impacts at the premises.
- Total petroleum hydrocarbons replaced with total recoverable hydrocarbons (TRHs) in accordance with updated terminology adopted in the *Assessment of Site Contamination*

NEPM (NEPC, 2013).

- Removal of organochlorine and organophosphate (CO/OP) pesticides, benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and TRHs from the analytical suite for ARMB1, ARMB5 and ARMB8. The soil bioremediation area where hydrocarbon and pesticide contaminated soils are stored and handled is the part of the premises at highest risk from contamination by these substances. These parameters are not considered necessary for ARMB1 because there is now a substantial dataset indicating that these parameters are not present at concentrations above the limit of reporting (LOR) at this background monitoring bore. As ARMB5 and ARMB8 are not located within the vicinity of the soil bioremediation area where hydrocarbon and pesticide contaminated soils are handled and stored, these parameters are not relevant to these bores. These parameters will be retained for ARMB6A and ARMB7 to provide ongoing assessment of groundwater quality close to the soil bioremediation area and to continue to monitor dieldrin concentrations at ARMB6A.

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Licence Holder was provided with draft amendment on 23 November 2020	The Licence Holder responded on 2 December 2020. Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 6 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 6: Summary of licence amendments

Condition no.	Proposed amendments
1	Waste acceptance table formatting updated to reflect that the annual rate at which waste can be received is 200,000 tonnes for waste types accepted under category 61A (ASS/ PASS, contaminated soil and clean fill) and 50,000 tonnes for waste accepted under category 67A (green waste). The Licence Holder identified that when the waste acceptance table was reformatted as part of a previous licence amendment issued on 10 June 2020, it inadvertently reduced the overall rate at which waste could be received. The change in the current licence amendment reinstates the waste acceptance rates which were previously assessed and approved in a licence amendment dated 13 May 2019.
18	Changes to the groundwater monitoring frequency, network and analytical suite as summarised in Section 3.3.9.

Condition no.	Proposed amendments
19	Minor administrative amendment to the averaging period for asbestos fibre monitoring. The averaging period was changed from 8 hours to the duration of the shift during which handling and screening of asbestos or ACM contaminated material occurs. This more accurately reflects the appropriate sampling duration based on guidance in *NOHSC:3003 Guidance note on the membrane filter method for estimating airborne asbestos fibres.* This approach is consistent with recommendations from the Department of Health and advice provided by DWER to the Licence Holder in correspondence dated 20 October 2020.
21	Removal of IC1 and IC2 improvement requirements relating to permeability testing of the ASS/PASS and green waste pads and sump. New improvement program requiring the installation of ARMB7 and ARMB8 groundwater monitoring bores by 28 February 2021 based on the reasons outlined in Section 3.3.9.
22	New condition requiring the bore construction report to be submitted within 60 calendar days of the bores being constructed.
28	- Condition number update. - Minor condition and table number reference corrections/updates. - Groundwater monitoring reporting requirements updated to provide more detail about what should be included in the report. - Removal of the “Format or form” column.
23-30	Condition number updates only.
Definitions	Minor corrections and additions.
Figure 1	Premises map updated to expand the size of the ASS/PASS area to include an additional area to the east of the existing pad. This change was made after DWER identified from aerial photographs that the Licence Holder was already using an area to the east of the specified ASS/PASS area for green waste composting. The draft Amendment Report asked the Licence Holder to confirm if this was the case and whether this area met the required specifications for the ASS/PASS area in condition 6, Table 3 of the Existing Licence. In their comments on the draft Revised Licence and Amendment Report, the Licence Holder confirmed that this eastern area meets the infrastructure requirements for the ASS/PASS area as specified in condition 6, Table 3 of the Existing Licence and the ASS/PASS area in the Premises map should therefore be expanded to include it.
Figure 7	Updated groundwater monitoring bore map.

References

1. Aurora Environmental, 2020, *2019/2020 Quarterly Groundwater Monitoring Report, Abercrombie Road Resource Recovery Centre, Abercrombie Road, Kwinana, WA*. DWER reference A1918819 and A1918821
2. Aurora Environmental, 2019, *2018/2019 Quarterly Groundwater Monitoring Report, Abercrombie Road Resource Recovery Centre, Abercrombie Road, Kwinana, WA.* DWER reference REPORT19/334
3. Bureau of Meteorology 2016, *Design Rainfall Data System.* Accessed: http://www.bom.gov.au/water/designRainfalls/revised-ifd/
4. Davidson and Yu 2008, *Perth Regional Aquifer Modelling System (PRAMS) model development: Hydrogeology and groundwater modelling,* report no. HG 20, Perth.
5. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
6. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
7. DER 2015a, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
8. DER 2015b, *Treatment and management of soil and water in acid sulfate soil landscapes,* Perth, Western Australia.
9. DER, 2014, *Assessment and management of contaminated sites,* Perth, Western Australia.
10. DOH, 2014, *Contaminated Sites Ground and Surface Water Chemical Screening Guidelines,* Perth, Western Australia.
11. National Environmental Protection Council, 2013, *National Environmental Protection (Assessment of Site Contamination) Measure,*

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
1	Eclipse Soils requests a formatting change be made to *Table 1: Types of waste authorised to be accepted on the Premises* in the draft Licence to reflect the following: 1. Green waste to be shown as a separate line item with its own annual limit of 50,000 t, and not be included in the combined annual limit of 200,000 t with other waste types, as was the case prior to DWER issuing licence amendment 10 June 2020 for L8974/2016/1. Eclipse Soils believes the formatting of the waste acceptance table by DWER unintentionally changed the combined annual limit, as this change was not noted in the decision document that accompanied amendment 10 June 2020 for L8974/2016/1. The current formatting does not reflect the assessed production capacities of 200,000 t per annum for category 61A and 50,000 t per annum for 67A category on Eclipse Soils' licence. Eclipse Soils requests the formatting change outlined in item 1 above be made to *Table 1: Types of waste authorised to be accepted on the Premises* in the draft licence L8974/2016/2.	The Delegated Officer agrees with the Licence Holder's interpretation that this formatting change unintentionally reduced the annual rate at which waste can be received at the Premises. The formatting of Table 1 has been edited to reinstate the waste acceptance rates which were assessed and approved in a licence amendment dated 13 May 2019 – 200,000 tonnes per annual period for waste accepted under category 61A (ASS/PASS, contaminated soil and clean fill) and 50,000 tonnes per annual period for waste accepted under category 67A (green waste).
18	Eclipse Soils accepts the removal of improvement program conditions IC1 and IC2 relating to the green waste and ASS/PASS areas on the Premises. Removal of conditions IC1 and IC2 is an appropriate outcome given the following: • Concentrations of analytes in groundwater sampling are decreasing over time generally. • Relevant guidelines for groundwater are considered unlikely to be exceeded. • Composting green waste, and producing soils and mulches, does not include high nutrient/pathogen feedstocks such as animal manures or biosolids. • A significant component of green waste composted on site comes from residues off State Forest.	None required.

Condition	Summary of Licence Holder's comment	Department's response
18	Eclipse Soils accepts the change in sampling frequency from quarterly to six-monthly and the changes in the parameters required for analysis.	None required.
21	Eclipse Soils accepts the new conditions to the licence relating to the installation of two new groundwater monitoring bores as a precursor to moving back to annual groundwater monitoring (provided guidelines for analyte concentrations are being met).	The Delegated Officer considers that six-monthly groundwater monitoring is an appropriate groundwater sampling frequency for the Premises on an ongoing basis. Annual groundwater monitoring would not be a sufficient regulatory control based on the activities, infrastructure and risk profile of the Premises.
Premises map	Eclipse Soils confirms the orange rectangle area outlined in Figure 1 of the Amendment Report meets the infrastructure requirements specified in condition 6, Table 3 of the Existing Licence. The ASS/PASS area on the plan should be extended to include this area.	The area directly east of the ASS/PASS area is already used for green waste storage and based on the Licence Holder's comments, meets the ASS/PASS area specifications set out in condition 6. The Delegated Officer considers that this area is suitable for ASS/PASS processing and green waste composting and the Premises map was therefore updated to incorporate this area into the approved ASS/PASS area.

Appendix B: Soil Lithological Logs

BOREHOLE LOG

GBH04r

PROJECT: P21560: MRWA, Kwinana, DSI
LOCATION: Anketell Road, Anketell WA 6167
POSITION: E387489.142 N6435458.000 (GDA2020 / MGA zone 50)
RIG TYPE: Sonic Sample Drill
DATE: 08 Jan 2025
GENERAL NOTES: N/A
WATER NOTE: Water observed at 9.00 m

CLIENT: Main Roads WA
SURFACE ELEVATION: 9.53 m (AHD)
CONTRACTOR: Ecoprobe
DIAMETER: 75 mm

FINAL DEPTH: 21.00 m
INCLINATION: Vertical
ORIENTATION: N/A
CASING: 13.00 m
DIMENSIONS: N/A
LOGGED BY: TS
CHECKED BY: LH

METHOD	GROUND WATER LEVELS	WELL INSTALLATION	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
SONIC			9.0	0.0		FILL	FILL SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, Sandstone, pale yellow, dry.			
				0.5			fine to medium, white			
				1.0		FILL				
			8.0	1.5			pale brown			
				2.0		SM				
			7.0	2.5						
				3.0			pale grey with pale yellow and white			
			6.0	3.5						
				4.0						
			5.0	4.5						
				5.0						
			4.0	5.5		SM				
				6.0						
			3.0	6.5						
				7.0						
			2.0	7.5						
				8.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

GBH04r

PROJECT: P21560: MRWA, Kwinana, DSI
LOCATION: Anketell Road, Anketell WA 6167
POSITION: E387489.142 N6435458.000 (GDA2020 / MGA zone 50)
RIG TYPE: Sonic Sample Drill
DATE: 08 Jan 2025
GENERAL NOTES: N/A
WATER NOTE: Water observed at 9.00 m

CLIENT: Main Roads WA
SURFACE ELEVATION: 9.53 m (AHD)
CONTRACTOR: Ecoprobe
DIAMETER: 75 mm

FINAL DEPTH: 21.00 m
INCLINATION: Vertical
ORIENTATION: N/A
CASING: 13.00 m
DIMENSIONS: N/A
LOGGED BY: TS
CHECKED BY: LH

METHOD	GROUND WATER LEVELS	WELL INSTALLATION	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
SONIC	▶		1.0	8.5			pale grey with pale yellow and white			
				9.0		SP	SP SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, pale grey becoming pale brown, wet, (Tamala Limestone).			
			0.0	9.5						
				10.0						
			-1.0	10.5						
				11.0			LIMESTONE: highly weathered, low strength, pale grey, wet			
			-2.0	11.5						
				12.0						
			-3.0	12.5						
				13.0						
			-4.0	13.5						
				14.0						
			-5.0	14.5						
				15.0						
			-6.0	15.5						
				16.0						

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BOREHOLE LOG

GBH04r

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 21.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387489.142 N6435458.000 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: 9.53 m (AHD)
ORIENTATION: N/A
RIG TYPE: Sonic Sample Drill
CONTRACTOR: Ecoprobe
CASING: 13.00 m
DATE: 08 Jan 2025
DIAMETER: 75 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
WATER NOTE: Water observed at 9.00 m
CHECKED BY: LH

METHOD	GROUND WATER LEVELS	WELL INSTALLATION	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
SONIC			-7.0	16.5			LIMESTONE: highly weathered, low strength, pale grey, wet			
			-8.0	17.0						
				17.5						
			-9.0	18.0						
				18.5		HW				
			-10.0	19.0						
				19.5						
			-11.0	20.0						
				20.5						
				21.0			Terminated at 21.00 m. Target Depth Achieved.			
			-12.0	21.5						
				22.0						
			-13.0	22.5						
				23.0						
			-14.0	23.5						
				24.0						

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BOREHOLE LOG
SB001/MW01

PROJECT: P21560: MRWA, Kwinana, DSI
LOCATION: Anketell Road, Anketell WA 6167
POSITION: E385272.256 N6436510.532 (GDA2020 / MGA zone 50)
RIG TYPE: Hand auger/FRASTE Sonic Samp Drill
DATE: 21 Nov 2024
GENERAL NOTES: N/A

CLIENT: Main Roads WA
SURFACE ELEVATION: 11.19 m (AHD)
CONTRACTOR: Ecoprobe
DIAMETER: 75 mm

FINAL DEPTH: 13.00 m
INCLINATION: Vertical
ORIENTATION: N/A
CASING: 13.00 m
DIMENSIONS: N/A
LOGGED BY: SP
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	WELL INSTALLATION	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA			11.0	0.0		FILL	FILL Gravelly SAND: poorly graded, fine, sub-rounded, SAND, fine, sub-rounded to sub-angular Gravel, pale grey , inferred loose, dry, anthropogenic material including concrete fragments (<5%),.	ED	SB001/ MW01_0.0-0.05	
				0.5				ED	SB001/ MW01_0.4-0.5	
			10.0	1.0		SP	SP SAND: poorly graded, fine, sub-rounded, SAND, pale brown , inferred loose , dry , (Tamala Limestone).	ED	SB001/ MW01_0.9-1.0	
				1.5						
			9.0	2.0				EU	SB001/ MW01_1.9-2.0	
				2.5						
			8.0	3.0				EU	SB001/ MW01_2.9-3.0	
				3.5						
SONIC			7.0	4.0		HW	LIMESTONE: fine, pale brown, low strength, highly weathered, dry.	EU	SB001/ MW01_3.9-4.0	
				4.5						
			6.0	5.0				EU	SB001/ MW01_4.9-5.0	
				5.5						
			5.0	6.0		SP	SP SAND: poorly graded, fine, sub-rounded, SAND, pale brown , inferred loose, dry.	EU	SB001/ MW01_5.9-6.0	
				6.5						
				7.0				EU		

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BOREHOLE LOG
SB001/MW01

PROJECT: P21560: MRWA, Kwinana, DSI
LOCATION: Anketell Road, Anketell WA 6167
POSITION: E385272.256 N6436510.532 (GDA2020 / MGA zone 50)
RIG TYPE: Hand auger/FRASTE Sonic Samp Drill
DATE: 21 Nov 2024
GENERAL NOTES: N/A

CLIENT: Main Roads WA
SURFACE ELEVATION: 11.19 m (AHD)
CONTRACTOR: Ecoprobe
DIAMETER: 75 mm

FINAL DEPTH: 13.00 m
INCLINATION: Vertical
ORIENTATION: N/A
CASING: 13.00 m
DIMENSIONS: N/A
LOGGED BY: SP
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	WELL INSTALLATION	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
SONIC	▼		4.0	7.5			LIMESTONE: fine to coarse, pale brown, low strength, highly weathered, dry; (Tamala Limestone) .		SB001/ MW01_6.9-7.0	
			3.0	8.0				EU	SB001/ MW01_7.9-8.0	
				8.5		HW				
			2.0	9.0				EU	SB001/ MW01_8.9-9.0	
				9.5						
			1.0	10.0				EU	SB001/ MW01_9.9-10.0	
				10.5			wet			
			0.0	11.0				EU	SB001/ MW01_10.9-11.0	
				11.5		HW				
			-1.0	12.0				EU	SB001/ MW01_11.9-12.0	
				12.5						
			-2.0	13.0				EU	SB001/ MW01_12.9-13.0	
				13.5			Terminated at 13.00 m. Target Depth Achieved.			
				14.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
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BOREHOLE LOG

SB002

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385298.335 N6436167.171 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 17 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
SFA		0.5		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown, inferred loose, dry.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB003

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E384785.779 N6435712.112 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 24 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: HB
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, dark grey brown, inferred medium dense, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
PT		1.0		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown, inferred medium dense, dry.			PID(1.0m)=0 PPM
		1.5						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB004

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E384823.328 N6435722.855 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 24 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: CL
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, brown becoming dark brown, inferred very loose becoming dense, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
PT		1.0		SP	SP SAND: poorly graded, fine to coarse, rounded to sub-angular, SAND, pale brown, inferred medium dense, dry.			PID(1.0m)=0 PPM
		1.5						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB005

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385253.298 N6435713.204 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 24 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: HB
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, brown, inferred medium dense, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
PT		0.5		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown, inferred medium dense, dry.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB006

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385523.138 N6435454.174 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 17 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		FILL	FILL Gravelly SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, poorly graded, fine to coarse Gravel, brown, inferred loose, dry.			PID(0.0m)=0 PPM
SFA		0.5		SP	SP SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, brown, inferred loose, dry, (Bassendean Sand).			PID(0.5m)=0 PPM
		1.0		SP	SP SAND: fine to medium, SAND, orange to brown, inferred medium dense.			PID(1.0m)=0 PPM
		1.5						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB007

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385551.214 N6435289.072 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 17 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP Gravelly SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, poorly graded, fine to coarse Gravel, brown, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
SFA		0.5		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown, inferred loose, dry.			PID(0.5m)=0 PPM
		1.0		SP	SP SAND: SAND, pale orange to pale brown.			PID(1.0m)=0 PPM
		1.5						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB008

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385564.570 N6434946.530 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 17 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		FILL	FILL SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, pale brown, inferred very loose, dry.			PID(0.0m)=0 PPM
SFA		0.5		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale orange to pale brown, inferred loose, dry, (Bassendean Sand).			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB009

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385631.731 N6435518.652 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 17 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0			SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
SFA		1.0		SP				PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB010

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385673.840 N6435720.373 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 18 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		FILL	FILL SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, pale brown, inferred very loose, dry.			PID(0.0m)=0 PPM
		0.5		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown becoming pale orange, inferred loose, dry, (Bassendean Sand).			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB011

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385796.415 N6435756.957 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 18 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, pale brown to pale orange, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0		SP	SP SAND: fine to medium			PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB012

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385655.982 N6435888.672 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 23 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, brown becoming pale orange, inferred very loose becoming loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB013

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385781.942 N6435801.938 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 23 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: CL
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, pale brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5		SP	SP Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, brown to orange, inferred loose, dry.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB014

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E385947.629 N6435743.425 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 18 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		FILL	FILL SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, pale brown, inferred very loose, dry.			PID(0.0m)=0 PPM
				SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, white, inferred loose, dry, (Bassendean Sand).			
		0.5		SP	SP SAND: pale brown			PID(0.5m)=0 PPM
		1.0		SM	SM Silty SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, pale brown becoming pale orange, inferred loose, dry.			PID(1.0m)=0 PPM
		1.5						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB015

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 5.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E386286.887 N6435807.636 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 24 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: HB
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, brown, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5		SP	SP SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, orange brown, inferred medium dense, dry.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
PT		2.0						PID(2.0m)=0 PPM
		2.5						
		3.0						PID(3.0m)=0 PPM
		3.5						
		4.0		SP	SP SAND: pale orange brown, inferred very dense			PID(4.0m)=0 PPM
		4.5						PID(4.9m)=0 PPM
		5.0			Terminated at 5.00 m. Target Depth Achieved.			
		5.5						
		6.0						
		6.5						
		7.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB016

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 6.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E386552.410 N6435784.182 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 23 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		FILL	FILL SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, pale brown, inferred very loose, dry.			PID(0.0m)=0 PPM
				SM	SM Silty SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, pale brown, inferred very dense, dry, (Bassendean Sand).			
		0.5			SP SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, brown becoming orange, inferred loose, silt.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
PT		2.0						PID(2.0m)=0 PPM
		2.5						
		3.0						PID(3.0m)=0 PPM
				SP				
		3.5						
		4.0						PID(4.0m)=0 PPM
		4.5						
		5.0						PID(4.9m)=0 PPM
		5.5						
		6.0			Terminated at 6.00 m. Target Depth Achieved.			
		6.5						
		7.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB017

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 7.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E386786.826 N6435753.855 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 23 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA / PT / SFA		0.0		SP	SP SAND: poorly graded, medium, sub-rounded to rounded, SAND, brown with orange and brown, inferred loose becoming medium dense, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0						PID(2.0m)=0 PPM
		2.5						
		3.0						PID(3.0m)=0 PPM
		3.5						
		4.0						PID(4.0m)=0 PPM
		4.5						
		5.0						PID(5.0m)=0 PPM
		5.5						
		6.0						PID(6.0m)=0 PPM
		6.5						
		7.0						PID(6.9m)=0 PPM
					Terminated at 7.00 m. Target Depth Achieved.			
		7.5						
		8.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes

For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB018

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E386573.461 N6435690.722 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 22 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, medium, sub-rounded to rounded, SAND, brown becoming orange - brown, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB019

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387456.424 N6435578.105 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 17 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, dark brown, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5		SP	SP SAND: fine to coarse, pale brown to pale orange			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB020

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387381.929 N6435514.039 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 17 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
SFA		0.5		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, orange and brown, inferred medium dense becoming dense, dry.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB021

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387390.096 N6435562.206 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 18 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown becoming pale orange, inferred loose, dry.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB022

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 7.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387564.409 N6435552.343 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 18 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0		SP	SP SAND: fine to medium, brown and pale orange, inferred loose			PID(1.0m)=0 PPM
		1.5						
		2.0						PID(2.0m)=0 PPM
PT		2.5						
		3.0						PID(3.0m)=0 PPM
		3.5		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown, inferred very dense, dry.			
		4.0		SP	SP SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, brown and pale orange, inferred medium dense, dry.			PID(4.0m)=0 PPM
		4.5						
		5.0						PID(5.0m)=0 PPM
		5.5						
		6.0						PID(6.0m)=0 PPM
		6.5						
		7.0						PID(6.9m)=0 PPM
					Terminated at 7.00 m. Target Depth Achieved.			
		7.5						
		8.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB023

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387453.842 N6435792.786 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 17 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown to pale orange, inferred loose, dry.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB024

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387457.108 N6435927.279 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 17 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB025

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 5.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387488.583 N6435457.109 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 18 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		FILL	FILL Gravelly SAND: poorly graded, fine to coarse, sub-angular to sub-angular, SAND, poorly graded, fine to coarse Gravel, pale brown, inferred loose, dry.			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
SFA		1.0		SM	SM Silty SAND: poorly graded, medium to coarse, sub-rounded to sub-angular, SAND, orange and brown, inferred dense, dry, (Bassendean Sand).			PID(1.0m)=0 PPM
		1.5						
		2.0						PID(1.9m)=0 PPM
		2.5						
		3.0						
		3.5						
		4.0						
		4.5						
		5.0			Terminated at 5.00 m. Target Depth Achieved.			
		5.5						
		6.0						
		6.5						
		7.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB026

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 7.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387857.577 N6435554.364 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 18 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		FILL	FILL Gravelly SAND: poorly graded, fine to coarse, sub-angular to sub-angular, SAND, pale brown, inferred very loose, dry.			PID(0.0m)=0 PPM
					SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale orange with brown, inferred very dense, dry, (Bassendean Sand).			
		0.5		SP				PID(0.5m)=0 PPM
PT		1.0						PID(1.0m)=0 PPM
					SP SAND: fine, orange with brown, inferred dense			
		1.5						
		2.0						PID(2.0m)=0 PPM
		2.5						
		3.0						PID(3.0m)=0 PPM
		3.5						
		4.0		SP				PID(4.0m)=0 PPM
		4.5						
SFA		5.0						PID(5.0m)=0 PPM
		5.5						
		6.0						PID(6.0m)=0 PPM
		6.5						
		6.9						PID(6.9m)=0 PPM
		7.0			Terminated at 7.00 m. Target Depth Achieved.			
		7.5						
		8.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB027

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E388638.842 N6435474.851 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 21 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine to medium, sub-rounded to rounded, SAND, brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
					SP: orange with brown, inferred loose.			
		0.5						PID(0.5m)=0 PPM
		1.0		SP				PID(1.0m)=0 PPM
		1.5						
								PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB028

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E389190.046 N6435474.455 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 22 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, pale brown becoming pale orange, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM PID(2.0m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB029

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E389686.824 N6435495.186 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 22 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, brown becoming pale orange, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB030

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E389720.132 N6435400.859 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 22 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to rounded, SAND, dark brown, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
				SP	SP SAND: poorly graded, medium, sub-rounded to rounded, SAND, orange with brown, inferred medium dense, dry.			PID(0.5m)=0 PPM
		0.5						
		1.0						PID(1.0m)=0 PPM
PT		1.5						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB031

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E390014.475 N6435658.738 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 21 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, medium to coarse, sub-rounded to rounded, SAND, grey with brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5		SP	SP: brown becoming orange with brown, inferred loose.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		1.9						PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB032

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E390379.175 N6435811.644 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 22 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, dark brown becoming pale grey, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB033

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E390965.631 N6435874.045 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 22 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, grey and brown becoming pale grey, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0						PID(1.9m)=0 PPM
					Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB034

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E391096.245 N6435772.399 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 21 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
PT		0.0		SP	SP SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, brown, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5		SP	SP SAND: grey brown becoming brown			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB035

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E391046.026 N6435857.415 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 22 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
PT		0.0		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, brown becoming pale grey, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB036

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E391539.490 N6435720.426 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 21 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, brown becoming pale orange, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
					SP: pale orange.			
		0.5		SP				PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
					SP: brown with pale orange.			
		1.5		SP				PID(1.9m)=0 PPM
		2.0			Terminated at 2.00 m. Target Depth Achieved.			
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB037

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E391745.800 N6435669.673 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 21 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, dark brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5		SP	SP: brown becoming pale orange, inferred loose.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB038

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E391827.030 N6435665.023 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 21 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, medium to coarse, sub-rounded to rounded, SAND, brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
					SP: dark orange becoming brown with orange , inferred loose becoming medium dense.			
		0.5						PID(0.5m)=0 PPM
		1.0		SP				PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB039

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 0.50 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E391784.394 N6435733.788 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Hand Auger
CONTRACTOR: DPP
CASING: Not cased
DATE: 21 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, pale brown, inferred very loose, dry, anthropogenic material including asphalt (<5%), concrete fragments (>40%), conglomerate (>40%)			PID(0.0m)=0 PPM
		0.5			Terminated at 0.50 m. Refusal on asphalt .			PID(0.5m)=0 PPM
		1.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB040

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 5.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E392445.356 N6435620.718 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 22 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0			SP SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, brown becoming pale orange, inferred loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5						PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0						PID(2.0m)=0 PPM
PT		2.5		SP				
		3.0						PID(3.0m)=0 PPM
		3.5						
		4.0						PID(4.0m)=0 PPM
		4.5						
		5.0						PID(4.9m)=0 PPM
					Terminated at 5.00 m. Target Depth Achieved.			
		5.5						
		6.0						
		6.5						
		7.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes

For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG
SB041 / MW02

PROJECT: P21560: MRWA, Kwinana, DSI
LOCATION: Anketell Road, Anketell WA 6167
POSITION: E386076.944 N6435236.514 (GDA2020 / MGA zone 50)
RIG TYPE: Fraste SonicSamp Drill
DATE: 18 Nov 2024
GENERAL NOTES: N/A

CLIENT: Main Roads WA
SURFACE ELEVATION: 22.05 m (AHD)
CONTRACTOR: Ecoprobe
DIAMETER: 75 mm

FINAL DEPTH: 27.00 m
INCLINATION: Vertical
ORIENTATION: N/A
CASING: 27.00 m
DIMENSIONS: N/A
LOGGED BY: ECG
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	WELL INSTALLATION	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
SONIC			22.0	0.0		FILL	FILL Silty SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, non-plastic, Silt, pale brown, loose, dry, no odour, no staining.	EU	SB041 / MW02_0.0-0.1 QC116, QC216	
						FILL	FILL Gravelly Silty SAND: fine to coarse, sub-angular, SAND, poorly graded, fine to medium, sub-angular Gravel, non plastic Silt, pale green, loose, dry, no odour, no staining.			
				0.5				EU	SB041 / MW02_0.4-0.5	
						FILL	FILL: pale grey.			
			21.0	1.0				EU	SB041 / MW02_0.9-1.0	
						SM	SM Silty SAND: poorly graded, fine to coarse, sub-rounded to sub-angular, SAND, non-plastic, Silt, brown, medium dense, moist, no odour, no staining, (Bassendean Sand).			
			20.0	2.0				EU	SB041 / MW02_1.9-2.0	
				2.5			LIMESTONE: fine to coarse, pale brown, medium strength, slightly weathered, dry; (Tamala Limestone).			
			19.0	3.0				EU	SB041 / MW02_2.9-3.0	
				3.5		SW				
			18.0	4.0				EU	SB041 / MW02_3.9-4.0	
				4.5			SM Silty SAND: poorly graded, fine to coarse, sub-angular to sub-rounded, SAND, brown, inferred medium dense, dry, (Bassendean Sand) .			
			17.0	5.0				EU	SB041 / MW02_4.9-5.0	
				5.5		SM				
			16.0	6.0				EU	SB041 / MW02_5.9-6.0	
				6.5						
				7.0				EU	SB041 /	

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes

For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG
SB041 / MW02

PROJECT: P21560: MRWA, Kwinana, DSI
LOCATION: Anketell Road, Anketell WA 6167
POSITION: E386076.944 N6435236.514 (GDA2020 / MGA zone 50)
RIG TYPE: Fraste SonicSamp Drill
DATE: 18 Nov 2024
GENERAL NOTES: N/A

CLIENT: Main Roads WA
SURFACE ELEVATION: 22.05 m (AHD)
CONTRACTOR: Ecoprobe
DIAMETER: 75 mm

FINAL DEPTH: 27.00 m
INCLINATION: Vertical
ORIENTATION: N/A
CASING: 27.00 m
DIMENSIONS: N/A
LOGGED BY: ECG
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	WELL INSTALLATION	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
SONIC			15.0				SM Silty SAND: poorly graded, fine to coarse, sub-angular to sub-rounded, SAND, brown, inferred medium dense, dry, (Bassendean Sand) .		MW02_6.9-7.0	
				7.5						
			14.0	8.0				EU	SB041 / MW02_7.9-8.0	
				8.5			LIMESTONE: fine to coarse, pale brown, low strength, highly weathered, dry; (Tamala Limestone) .			
			13.0	9.0				EU	SB041 / MW02_8.9-9.0	
				9.5						
			12.0	10.0		HW		EU	SB041 / MW02_9.9-10.0	
				10.5						
			11.0	11.0				EU	SB041 / MW02_10.9-11.0	
				11.5						
			10.0	12.0			LIMESTONE: pale white brown, medium strength, moderately weathered.	EU	SB041 / MW02_11.9-12.0	
				12.5						
			9.0	13.0		MW				
				13.5						
				14.0				EU	SB041 /	

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG
SB041 / MW02

PROJECT: P21560: MRWA, Kwinana, DSI
LOCATION: Anketell Road, Anketell WA 6167
POSITION: E386076.944 N6435236.514 (GDA2020 / MGA zone 50)
RIG TYPE: Fraste SonicSamp Drill
DATE: 18 Nov 2024
GENERAL NOTES: N/A

CLIENT: Main Roads WA
SURFACE ELEVATION: 22.05 m (AHD)
CONTRACTOR: Ecoprobe
DIAMETER: 75 mm

FINAL DEPTH: 27.00 m
INCLINATION: Vertical
ORIENTATION: N/A
CASING: 27.00 m
DIMENSIONS: N/A
LOGGED BY: ECG
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	WELL INSTALLATION	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
SONIC			8.0	14.5			LIMESTONE: pale white brown, medium strength, moderately weathered.		MW02_13.9-14.0	
			7.0	15.0			core loss	EU	SB041 / MW02_14.9-15.0	
			6.0	16.0		SW	LIMESTONE: fine to coarse, pale brown, high strength, slightly weathered, dry.			
			5.0	17.0						
			4.0	18.0			core loss			
			3.0	19.0						
			2.0	20.0			LIMESTONE: fine to coarse, pale brown, high strength, slightly weathered, dry; no odour, no staining.			
				21.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG
SB041 / MW02

PROJECT: P21560: MRWA, Kwinana, DSI
LOCATION: Anketell Road, Anketell WA 6167
POSITION: E386076.944 N6435236.514 (GDA2020 / MGA zone 50)
RIG TYPE: Fraste SonicSamp Drill
DATE: 18 Nov 2024
GENERAL NOTES: N/A

CLIENT: Main Roads WA
SURFACE ELEVATION: 22.05 m (AHD)
CONTRACTOR: Ecoprobe
DIAMETER: 75 mm

FINAL DEPTH: 27.00 m
INCLINATION: Vertical
ORIENTATION: N/A
CASING: 27.00 m
DIMENSIONS: N/A
LOGGED BY: ECG
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	WELL INSTALLATION	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
SONIC			1.0	21.5			LIMESTONE: fine to coarse, pale brown, high strength, slightly weathered, dry; no odour, no staining.			
			0.0	22.0			LIMESTONE: low strength, highly weathered, wet.	EU	SB041 / MW02_21.9-22.0	
			-1.0	22.5						
				23.0		HW		EU	SB041 / MW02_22.9-23.0	
			-2.0	23.5						
				24.0			LIMESTONE: medium strength, moderately weathered	EU	SB041 / MW02_23.9-24.0	
			-3.0	24.5						
				25.0						
			-4.0	25.5						
				26.0						
			-5.0	26.5						
				27.0			Terminated at 27.00 m. Target Depth Achieved.			
				27.5						
				28.0						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

BOREHOLE LOG

SB042

PROJECT: P21560: MRWA, Kwinana, DSI
FINAL DEPTH: 2.00 m
LOCATION: Anketell Road, Anketell WA 6167
CLIENT: Main Roads WA
INCLINATION: Vertical
POSITION: E387452.460 N6436275.398 (GDA2020 / MGA zone 50)
SURFACE ELEVATION: Not measured
ORIENTATION: N/A
RIG TYPE: Geoprobe
CONTRACTOR: DPP
CASING: Not cased
DATE: 18 Oct 2024
DIAMETER: 100 mm
DIMENSIONS: N/A
GENERAL NOTES: N/A
LOGGED BY: TS
CHECKED BY: VL

METHOD	GROUND WATER LEVELS	DEPTH (m)	GRAPHIC LOG	MODIFIED GROUP SYMBOL	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	FIELD TESTS
HA		0.0		SP	SP SAND: poorly graded, fine, sub-rounded to sub-angular, SAND, brown, inferred very loose, dry, (Bassendean Sand).			PID(0.0m)=0 PPM
		0.5		SM	SM Silty SAND: poorly graded, fine to medium, sub-rounded to sub-angular, SAND, pale brown becoming pale orange, inferred loose, dry.			PID(0.5m)=0 PPM
		1.0						PID(1.0m)=0 PPM
		1.5						
		2.0			Terminated at 2.00 m. Target Depth Achieved.			PID(1.9m)=0 PPM
		2.5						

These logs have been prepared for environmental purposes and should not be used for geotechnical design and interpretive purposes
For explanation and abbreviations and symbols, refer to Soil Description Notes & Abbreviations (SEN-TECH-051).

Appendix C: Photo Log



Photograph 1. Sampling location SB002 (after service locating surrounding area)



Photograph 2. Sampling location SB003 (after service locating surrounding area)



Photograph 3. Sampling location SB004 (after service locating surrounding area)



Photograph 4. Sampling location SB005 (after service locating surrounding area)



Photograph 5. Sampling location SB006 (after service locating surrounding area)



Photograph 6. Sampling location SB007 (after service locating surrounding area)



Photograph 7. Sampling location SB008 (after service locating surrounding area)



Photograph 8. Sampling location SB009 (after service locating surrounding area)



Photograph 9. Sampling location SB010 (after service locating surrounding area)



Photograph 10. Sampling location SB011 (after service locating surrounding area)



Photograph 11. Sampling location SB012 (after service locating surrounding area)



Photograph 12. Sampling location SB013 (after service locating surrounding area)



Photograph 13. Sampling location SB014 (after service locating surrounding area)



Photograph 14. Sampling location SB015 (after service locating surrounding area)



Photograph 15. Sampling location SB016 (after service locating surrounding area)



Photograph 16. Sampling location SB017 (after service locating surrounding area)



Photograph 17. Sampling location SB018 (after service locating surrounding area)



Photograph 18. Sampling location SB019 (after service locating surrounding area)



Photograph 19. Sampling location SB020 (after service locating surrounding area)



Photograph 20. Sampling location SB021 (after service locating surrounding area)



Photograph 21. Sampling location SB022 (after service locating surrounding area)



Photograph 22. Sampling location SB023 (after service locating surrounding area)



Photograph 23. Sampling location SB025 (after service locating surrounding area)



Photograph 24. Sampling location SB026 (after service locating surrounding area)



Photograph 25. Sampling location SB028 (after service locating surrounding area)



Photograph 26. Sampling location SB029 (after service locating surrounding area)



Photograph 27. Sampling location SB031 (after service locating surrounding area)



Photograph 28. Sampling location SB032 (after service locating surrounding area)



Photograph 29. Sampling location SB033 (after service locating surrounding area)



Photograph 30. Sampling location SB034 (after service locating surrounding area)



Photograph 31. Sampling location SB035 (after service locating surrounding area)



Photograph 32. Sampling location SB037 (after service locating surrounding area)



Photograph 33. Sampling location SB038 (after service locating surrounding area)



Photograph 34. Sampling location SB039 (after service locating surrounding area)



Photograph 35. Sampling location SB040 (after service locating surrounding area)



Photograph 36. Sampling location SB042 (after service locating surrounding area)



Photograph 37. Sampling location MW01_SB001 (after service locating surrounding area)



Photograph 38. Sampling location MW02_SB041 (after service locating surrounding area)



Photograph 39. SB002 (17/10/2024)



Photograph 40. SB003 (24/10/2024)



Photograph 41. SB004 (24/10/2024)



Photograph 42. SB005 (24/10/2024)



Photograph 43. SB006 (17/10/2024)



Photograph 44. SB007 (17/10/2024)



Photograph 45. SB008 (17/10/2024)



Photograph 46. SB009 (17/10/2024)



Photograph 47. SB010 (18/10/2024)



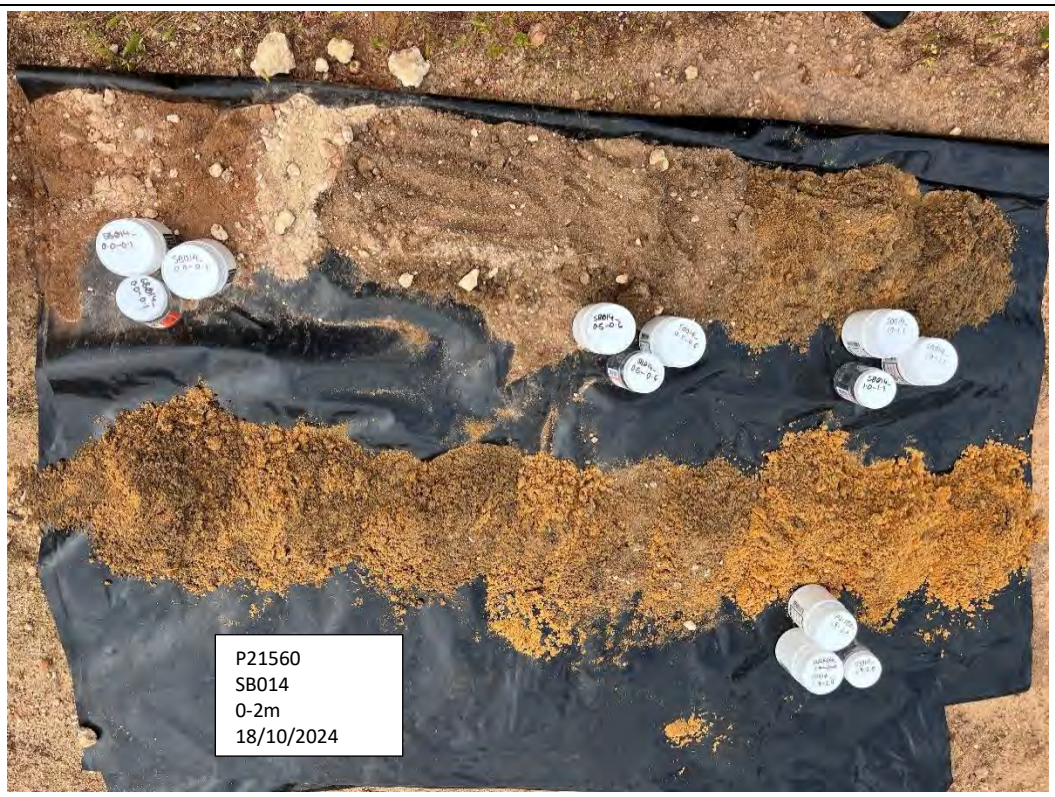
Photograph 48. SB011 (18/10/2024)



Photograph 49. SB012 (23/10/2024)



Photograph 50. SB013 (23/10/2024)



Photograph 51. SB014 (18/10/2024)



Photograph 52. SB015 (24/10/2024)



Photograph 53. SB016 (23/10/2024)



Photograph 54. SB016 (23/10/2024)



Photograph 55. SB018 (22/10/2024)



Photograph 56. SB019 (17/10/2024)



Photograph 57. SB020 (17/10/2024)



Photograph 58. SB021 (18/10/2024)



Photograph 59. SB022 (18/10/2024)



Photograph 60. SB023 (17/10/2024)



Photograph 61. SB024 (17/10/2024)



Photograph 62. SB0025 (18/10/2024)



Photograph 63. SB026 (18/10/2024)



Photograph 64. SB027 (21/10/2024)



Photograph 65. SB028 (22/10/2024)



Photograph 66. SB029 (22/10/2024)



Photograph 67. SB030 (22/10/2024)



Photograph 68. SB031 (21/10/2024)



Photograph 69. SB032 (22/10/2024)



Photograph 70. SB033 (22/10/2024)



Photograph 71. SB034 (21/10/2024)



Photograph 72. SB035 (22/10/2024)



Photograph 73. SB036 (21/10/2024)



Photograph 74. SB038 (21/10/2024)



Photograph 75. SB039 (21/10/2024)



Photograph 76. SB040 (22/10/2024)



Photograph 77. SB040a (21/10/2024)



Photograph 78. SB042 (18/10/2024)



Photograph 80: GBH04R (15/01/2025)



Photograph 81: MW01 (21/11/2024)



Photograph 82: MW02 (18/11/2024)

Appendix D: Calibration Certificates

Calibration Report

MiniRAE 3000 - VOC

Customer: Senversa
Contact: Paul

Manufacturer: RAE Systems
Instrument: MiniRAE 3000
Model: PGM-7320
Serial #: 592-932449

Item	Test	Pass	Comments
Battery	Li Ion	✓	4.2v/3300mAH rechargeable Lithium-Ion battery pack
Charger	Charger, Power supply	✓	(run time 848 minutes tested 12-Jan-22)
	Cradle, travel charger	✓	
Filter	Filter, fitting, etc	✓	
Alarms	Alarm Mode	✓	Auto Reset
	Buzzer & Light	✓	Both On
Datalogger	Datalog	✓	Cleared
	Interval	✓	60 secs
	Data Selection	✓	Minimum, Average, Maximum
	Datalog Type	✓	Auto
Display	Operation	✓	
Switches	Operation	✓	
PCB	Operation - Main	✓	
Connectors	Charging port	✓	
Firmware	Version	✓	2.22A
Monitor	Operation mode	✓	Hygiene mode
	User mode	✓	Advanced
	Time	✓	24 hour
	Pump Duty Cycle	✓	100%
	Pump Speed	✓	High
	Pump Flow Rate	✓	>400 ml/min
	Temperature	✓	Degree Celsius
	Real Time Protocol	✓	P2P (cable)
	Power on Zero	✓	Off
	Lamp ID	✓	10.6 eV
Monitor housing	Condition	✓	Clean
Case	Rubber boot	✓	Yellow

Alarms				
Sensors	**High**	**Low**	**STEL**	**TWA**
VOC	100 ppm	50 ppm	25 ppm	10 ppm

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Lamp ID	Span Gas	Concentration	Cyl. No.		Zero	Span
VOC		Isobutylene	100 ppm	WO279952-5		0.0 ppm	100.0 ppm

Calibrated by: Gaurav Kanwar

Calibration Date: 15-Oct-24
Next Due: 14-Dec-24

Calibration Report

Multi-Parameter Water Quality Instrument

Customer: Senversa
Contact: Toby

Manufacturer: YSI
Instrument: Professional Plus with Quatro cable
Serial #: 20H100322
Cable length: 1m 22B100428

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 30 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	Good, clean
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	174.40 mV
pH slope		✓	55 to 60 mV/pH, ideal 59mV 58.52
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	Good, clean
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	variance range ± 20mV 0 mV
Conductivity			
Condition		✓	Good, clean
Temperature		✓	°C
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	polarographic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

						Instrument Readings		
Parameter	**Standards**	**Reference**	**Calibration Point**	**Span**	**Units**	**Before**	**After**	**Units**
Temperature (24J100305)	Check Temp NATA	Room Temp	21.8	-0.1	°C	NA	21.7	°C
pH (23F)	pH 7.00	398528	7.01	-15.10	mV	7	7.01	pH
pH (23F)	pH 4.00	401033	4.00	159.30	mV	4	4.00	pH
Conductivity (24J100305)	2764 µs/cm at 25°C	24/0107	2764	GLP	5.08	2718	2764	µs/cm
ORP (200709SIA605101)	Zobell A & B	24/1807	236	236	mV	238.1	236.3	mV
Zero DO (24H100082)	NaSO3 in distilled water	10175	0.0	NA	NA	-0.3	0.0	%
100% DO (24H100082)	100% Air Saturation	Air	100.0	5.76	uA	98.7	100.0	%

Calibrated by: Gaurav Kanwar

Calibration Date: 13-Jan-25
Next Due: 12-Jul-25

Calibration Report

Multi-Parameter Water Quality Instrument

Customer: Senversa
Contact: Indianna

Manufacturer: YSI
Instrument: Professional Plus with Quatro cable
Serial #: 22H102060
Cable length: 1m (22B100428)

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 30 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	Good, clean
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	173.20 mV
pH slope		✓	55 to 60 mV/pH, ideal 59mV 58.24
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	Good, clean
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	variance range ± 20mV 9 mV
Conductivity			
Condition		✓	Good, clean
Temperature		✓	°C
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	polarographic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

						Instrument Readings		
Parameter	**Standards**	**Reference**	**Calibration Point**	**Span**	**Units**	**Before**	**After**	**Units**
Temperature (22D100150)	Check Temp NATA	Room Temp	21.2	0	°C	NA	21.2	°C
pH (23J)	pH 7.00	398528	7.01	-18.90	mV	7.02	7.01	pH
pH (23J)	pH 4.00	401033	4.00	154.30	mV	4.01	4.00	pH
Conductivity (22D100150)	2764 µs/cm at 25°C	24/0107	2764	GLP	4.87	2949	2764	µs/cm
ORP (22J)	Zobell A & B	24/2803	237	237	mV	225.4	228.7	mV
Zero DO (22J100169)	NaSO3 in distilled water	10175	0.0	NA	NA	0	0.0	%
100% DO (22J100169)	100% Air Saturation	Air	100.0	5.4	uA	97.4	100.0	%

Calibrated by: Gaurav Kanwar

Calibration Date: 23-Nov-24
Next Due: 22-May-25

Appendix E: Laboratory Documentation

Mandatory Fields — CHAIN OF CUSTODY

Page ___of___

CLIENT CODE:	SENVER	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	CL
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0434 152 599	SAMPLER MOBILE:	0408 156 435
OFFICE: (Invoiced Office)		ALS QUOTE # (Current / 1 Only)	EP24SENVER0010	PURCHASE ORDER NO.:	
PROJECT NO./PROJECT:	P21546 MRWA Kwinana DSI			SITE:	Anketell Road
*INVOICE TO: (Client default if left)	supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au			CC Invoice to PM:	X
*EMAIL REPORTS TO: (Default to PM if blank)	paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au				

BIOSECURITY — Country of Origin: (Default Australia)

***STORAGE REQUIREMENTS** (Please check box → Standard Storage time from receipt of samples: Waters - 2 weeks; Soils - 2 months)
- X Standard Storage
- ☐ Extended Storage — Specify Disposal Date: — Note: Extended storage incurs a fee and requires a signed agreement.

***TURNAROUND** (Please check box → Note: 2 & 1 day TAT can be requested, standard Client Services for more information)
- X 3+ days (no surcharge)
- ☐ 3 day (+15%)
- ☐ 2 day (+20%)
- ☐ 1 day (+50%)

***ANALYSIS REQUIRED** (Mark an X in the boxes below, analysis to be done for the parameter listed above to be bolted on that sample.)

Soil Suite 1 - Metals | Soil Suite 2 - OCP+PCB+PFAS | Soil Suite 3 - PFAS | Soil Suite 4 - pH | Soil Suite 5 - Metals+Asbestos | Soil Suite 6 - Hydrocarbons | Water Suite 1 - ASS suite | Water Suite 2 - Metals+Hydrocarbons+PFAS | Water Suite 3 - PFAS QSM | ASS Suite 1 - pH+Sulfur | ASS Suite 2 - Cr-Sulfur | Hold

WO Sticker to go here (ALS use only)

Comments:

ALS Use Only: Lab ID	Sample ID	Depth	Date/Time	No. Bottles	MATRIX: Soil / Solid / Sediment / Water / Leachate / Oil / Tissue / Biota / Air / Swab	Soil Suite 1 - Metals	Soil Suite 2 - OCP+PCB+PFAS	Soil Suite 3 - PFAS	Soil Suite 4 - pH	Soil Suite 5 - Metals+Asbestos	Soil Suite 6 - Hydrocarbons	Water Suite 1 - ASS suite	Water Suite 2 - Metals+Hydrocarbons+PFAS	Water Suite 3 - PFAS QSM	ASS Suite 1 - pH+Sulfur	ASS Suite 2 - Cr-Sulfur	Hold	Lab QC (Additional charges may apply) Dup	Lab QC MS	Additional Information (Comment on hazards, e.g., asbestos, potential high contamination)
1	SB002_0.0-0.1		17/10/2024		S	X	X	X	X									☐	☐	
2	SB002_0.5-0.6		17/10/2024		S	X	X	X	X									☐	☐	
3	SB002_1.0-1.1		17/10/2024		S												X	☐	☐	
4	SB002_1.9-2.0		17/10/2024		S												X	☐	☐	
5	SB006_0.0-0.1		17/10/2024		S	X		X	X	X								☐	☐	
6	SB006_0.5-0.6		17/10/2024		S	X		X	X	X								☐	☐	
7	SB006_1.0-1.1		17/10/2024		S												X	☐	☐	
8	SB006_1.9-2.0		17/10/2024		S												X	☐	☐	
9	SB007_0.0-0.1		17/10/2024		S	X		X	X	X								☐	☐	
10	SB007_0.5-0.6		17/10/2024		S												X	☐	☐	
11	SB007_1.0-1.1		17/10/2024		S	X		X	X	X								☐	☐	
12	SB007_1.9-2.0		17/10/2024		S												X	☐	☐	
13	SB008_0.0-0.1		17/10/2024		S	X		X	X	X								☐	☐	
14	SB008_0.5-0.6		17/10/2024		S	X		X	X	X								☐	☐	
15	SB008_1.0-1.1		17/10/2024		S												X	☐	☐	
16	SB008_1.9-2.0		17/10/2024		S												X	☐	☐	
17	SB009_0.0-0.1		17/10/2024		S	X		X	X	X								☐	☐	
18	SB009_0.5-0.6		17/10/2024		S	X		X	X	X								☐	☐	
19	SB009_1.0-1.1		17/10/2024		S												X	☐	☐	
20	SB009_1.9-2.0		17/10/2024		S												X	☐	☐	
21	SB019_0.0-0.1		17/10/2024		S	X		X	X	X								☐	☐	
22	SB019_0.5-0.6		17/10/2024		S	X		X	X	X								☐	☐	
23	SB019_1.0-1.1		17/10/2024		S												X	☐	☐	
24	SB019_1.9-2.0		17/10/2024		S												X	☐	☐	
25	SB020_0.0-0.1		17/10/2024		S	X		X	X	X								☐	☐	
26	SB020_0.5-0.6		17/10/2024		S	X		X	X	X								☐	☐	
27	SB020_1.0-1.1		17/10/2024		S												X	☐	☐	
28	SB020_1.9-2.0		17/10/2024		S												X	☐	☐	
29	SB023_0.0-0.1		17/10/2024		S	X		X	X	X								☐	☐	
30	SB023_0.5-0.6		17/10/2024		S	X		X	X	X								☐	☐	
31	SB023_1.0-1.1		17/10/2024		S												X	☐	☐	
32	SB023_1.9-2.0		17/10/2024		S												X	☐	☐	
33	SB024_0.0-0.1		17/10/2024		S	X		X	X	X								☐	☐	
34	SB024_0.5-0.6		17/10/2024		S												X	☐	☐	
35	SB024_1.0-1.1		17/10/2024		S	X		X	X	X								☐	☐	
36	SB024_1.9-2.0		17/10/2024		S												X	☐	☐	
37	QC101		17/10/2024		S	X		X	X	X								☐	☐	
38	QC102		17/10/2024		S	X		X	X	X								☐	☐	
	QC201		17/10/2024															☐	☐	
	QC202		17/10/2024															☐	☐	

Please forward to Eurofins

Receipt Detail (Cooling Method: Ice / Ice Bricks / Freezer / Cooling Method / None; Ice Bricks / Freezer / Transport / None) — ALS Temp. °C °C °C — Security Seal Intact (circle): Yes / No / N/A — Courier Details: ☐ Courier/Flight ☐ Client — Courier Name #: — Packing/Shipping Carton Count: — Transit Days: — Airport Depart: — Arrival Days: — Next Flight Depart:

Relinquished by: — Signature: — Date/Time: — Received by: — Signature: — Date/Time:

Relinquished by: — Signature: — Date/Time: — Received by: — Signature: — Date/Time:

Environmental Division Perth
Work Order Reference
EP2415682

Telephone : +61-8-9406 1301

ALT 1700 18/10

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EP2415682**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 4
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: CL		

Dates

Date Samples Received	: 18-Oct-2024 13:00	Issue Date	: 24-Oct-2024
Client Requested Due Date	: 30-Oct-2024	Scheduled Reporting Date	: **30-Oct-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 4	Temperature	: 9.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 38 / 20

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN
EP2415682-001	17-Oct-2024 00:00	SB002_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415682-002	17-Oct-2024 00:00	SB002_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415682-003	17-Oct-2024 00:00	SB002_1.0-1.1	✓						
EP2415682-004	17-Oct-2024 00:00	SB002_1.9-2.0	✓						
EP2415682-005	17-Oct-2024 00:00	SB006_0.0-0.1		✓	✓		✓	✓	
EP2415682-006	17-Oct-2024 00:00	SB006_0.5-0.6		✓	✓		✓	✓	
EP2415682-007	17-Oct-2024 00:00	SB006_1.0-1.1	✓						
EP2415682-008	17-Oct-2024 00:00	SB006_1.9-2.0	✓						
EP2415682-009	17-Oct-2024 00:00	SB007_0.0-0.1		✓	✓		✓	✓	
EP2415682-010	17-Oct-2024 00:00	SB007_0.5-0.6	✓						
EP2415682-011	17-Oct-2024 00:00	SB007_1.0-1.1		✓	✓		✓	✓	
EP2415682-012	17-Oct-2024 00:00	SB007_1.9-2.0	✓						
EP2415682-013	17-Oct-2024 00:00	SB008_0.0-0.1		✓	✓		✓	✓	
EP2415682-014	17-Oct-2024 00:00	SB008_0.5-0.6		✓	✓		✓	✓	
EP2415682-015	17-Oct-2024 00:00	SB008_1.0-1.1	✓						
EP2415682-016	17-Oct-2024 00:00	SB008_1.9-2.0	✓						
EP2415682-017	17-Oct-2024 00:00	SB009_0.0-0.1		✓	✓		✓	✓	
EP2415682-018	17-Oct-2024 00:00	SB009_0.5-0.6		✓	✓		✓	✓	
EP2415682-019	17-Oct-2024 00:00	SB009_1.0-1.1	✓						
EP2415682-020	17-Oct-2024 00:00	SB009_1.9-2.0	✓						
EP2415682-021	17-Oct-2024 00:00	SB019_0.0-0.1		✓	✓		✓	✓	
EP2415682-022	17-Oct-2024 00:00	SB019_0.5-0.6		✓	✓		✓	✓	
EP2415682-023	17-Oct-2024 00:00	SB019_1.0-1.1	✓						
EP2415682-024	17-Oct-2024 00:00	SB019_1.9-2.0	✓						
EP2415682-025	17-Oct-2024 00:00	SB020_0.0-0.1		✓	✓		✓	✓	
EP2415682-026	17-Oct-2024 00:00	SB020_0.5-0.6		✓	✓		✓	✓	
EP2415682-027	17-Oct-2024 00:00	SB020_1.0-1.1	✓						
EP2415682-028	17-Oct-2024 00:00	SB020_1.9-2.0	✓						
EP2415682-029	17-Oct-2024 00:00	SB023_0.0-0.1		✓	✓		✓	✓	
EP2415682-030	17-Oct-2024 00:00	SB023_0.5-0.6		✓	✓		✓	✓	
EP2415682-031	17-Oct-2024 00:00	SB023_1.0-1.1	✓						
EP2415682-032	17-Oct-2024 00:00	SB023_1.9-2.0	✓						
EP2415682-033	17-Oct-2024 00:00	SB024_0.0-0.1		✓	✓		✓	✓	
EP2415682-034	17-Oct-2024 00:00	SB024_0.5-0.6	✓						
EP2415682-035	17-Oct-2024 00:00	SB024_1.0-1.1		✓	✓		✓	✓	

			(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN
EP2415682-036	17-Oct-2024 00:00	SB024_1.9-2.0	✓						
EP2415682-037	17-Oct-2024 00:00	QC101		✓	✓		✓	✓	
EP2415682-038	17-Oct-2024 00:00	QC102		✓	✓		✓	✓	

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)
EP2415682-005	17-Oct-2024 00:00	SB006_0.0-0.1	✓	✓
EP2415682-006	17-Oct-2024 00:00	SB006_0.5-0.6	✓	✓
EP2415682-009	17-Oct-2024 00:00	SB007_0.0-0.1	✓	✓
EP2415682-011	17-Oct-2024 00:00	SB007_1.0-1.1	✓	✓
EP2415682-013	17-Oct-2024 00:00	SB008_0.0-0.1	✓	✓
EP2415682-014	17-Oct-2024 00:00	SB008_0.5-0.6	✓	✓
EP2415682-017	17-Oct-2024 00:00	SB009_0.0-0.1	✓	✓
EP2415682-018	17-Oct-2024 00:00	SB009_0.5-0.6	✓	✓
EP2415682-021	17-Oct-2024 00:00	SB019_0.0-0.1	✓	✓
EP2415682-022	17-Oct-2024 00:00	SB019_0.5-0.6	✓	✓
EP2415682-025	17-Oct-2024 00:00	SB020_0.0-0.1	✓	✓
EP2415682-026	17-Oct-2024 00:00	SB020_0.5-0.6	✓	✓
EP2415682-029	17-Oct-2024 00:00	SB023_0.0-0.1	✓	✓
EP2415682-030	17-Oct-2024 00:00	SB023_0.5-0.6	✓	✓
EP2415682-033	17-Oct-2024 00:00	SB024_0.0-0.1	✓	✓
EP2415682-035	17-Oct-2024 00:00	SB024_1.0-1.1	✓	✓
EP2415682-037	17-Oct-2024 00:00	QC101	✓	✓
EP2415682-038	17-Oct-2024 00:00	QC102	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2415682**	Page	: 1 of 12
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 18-Oct-2024
Site	: Anketell Road	Issue Date	: 31-Oct-2024
Sampler	: CL	No. of samples received	: 38
Order number	: ----	No. of samples analysed	: 20

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, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EP2415547--006	Anonymous	**>C34 - C40 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2415364--044	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	EP2415364--044	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2415364--044	Anonymous	**Perfluorononane sulfonic acid (PFNS)**	68259-12-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2415364--044	Anonymous	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2415364--044	Anonymous	**Perfluorooctanoic acid (PFOA)**	335-67-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2415649--022	Anonymous	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	27619-97-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2415364--044	Anonymous	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	27619-97-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2415649--022	Anonymous	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	39108-34-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2415364--044	Anonymous	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	39108-34-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)	*Date extracted*	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EA002: pH 1:5 (Soils)						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils) - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
SB002_0.0-0.1, SB002_0.5-0.6, SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1, SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, QC101, SB024_0.0-0.1, SB024_1.0-1.1, QC102	30-Oct-2024	24-Oct-2024	**6**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Matrix Spikes (MS)						
Chloride Soluble By Discrete Analyser	ED045G	1	21	4.76	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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

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
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
SB002_0.0-0.1, SB002_0.5-0.6, SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1, SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, QC101, SB024_0.0-0.1, SB024_1.0-1.1, QC102	**17-Oct-2024**	**30-Oct-2024**	24-Oct-2024	×	**30-Oct-2024**	30-Oct-2024	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
SB002_0.0-0.1, SB002_0.5-0.6, SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1, SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, QC101, SB024_0.0-0.1, SB024_1.0-1.1, QC102	**17-Oct-2024**	**----**	----	----	**29-Oct-2024**	31-Oct-2024	✓
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved (ED040S)							
SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1, SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, SB024_0.0-0.1, SB024_1.0-1.1, QC101, QC102	**17-Oct-2024**	**30-Oct-2024**	14-Nov-2024	✓	**30-Oct-2024**	27-Nov-2024	✓

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
ED045G: Chloride by Discrete Analyser									
Soil Glass Jar - Unpreserved (ED045G)									
SB006_0.0-0.1,	SB006_0.5-0.6,		**17-Oct-2024**	**30-Oct-2024**	14-Nov-2024	✓	**30-Oct-2024**	27-Nov-2024	✓
SB007_0.0-0.1,	SB007_1.0-1.1,								
SB008_0.0-0.1,	SB008_0.5-0.6,								
SB009_0.0-0.1,	SB009_0.5-0.6,								
SB019_0.0-0.1,	SB019_0.5-0.6,								
SB020_0.0-0.1,	SB020_0.5-0.6,								
SB023_0.0-0.1,	SB023_0.5-0.6,								
SB024_0.0-0.1,	SB024_1.0-1.1,								
QC101,	QC102								
ED093S: Soluble Major Cations									
Soil Glass Jar - Unpreserved (ED093S)									
SB006_0.0-0.1,	SB006_0.5-0.6,		**17-Oct-2024**	**30-Oct-2024**	15-Apr-2025	✓	**30-Oct-2024**	15-Apr-2025	✓
SB007_0.0-0.1,	SB007_1.0-1.1,								
SB008_0.0-0.1,	SB008_0.5-0.6,								
SB009_0.0-0.1,	SB009_0.5-0.6,								
SB019_0.0-0.1,	SB019_0.5-0.6,								
SB020_0.0-0.1,	SB020_0.5-0.6,								
SB023_0.0-0.1,	SB023_0.5-0.6,								
SB024_0.0-0.1,	SB024_1.0-1.1,								
QC101,	QC102								
EG005(ED093)T: Total Metals by ICP-AES									
Soil Glass Jar - Unpreserved (EG005T)									
SB002_0.0-0.1,	SB002_0.5-0.6,		**17-Oct-2024**	**29-Oct-2024**	15-Apr-2025	✓	**30-Oct-2024**	15-Apr-2025	✓
SB006_0.0-0.1,	SB006_0.5-0.6,								
SB007_0.0-0.1,	SB007_1.0-1.1,								
SB008_0.0-0.1,	SB008_0.5-0.6,								
SB009_0.0-0.1,	SB009_0.5-0.6,								
SB019_0.0-0.1,	SB019_0.5-0.6,								
SB020_0.0-0.1,	SB020_0.5-0.6,								
SB023_0.0-0.1,	SB023_0.5-0.6,								
QC101,	SB024_0.0-0.1,	SB024_1.0-1.1,							
QC102									

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
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
SB002_0.0-0.1, SB002_0.5-0.6, SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1, SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, QC101, SB024_0.0-0.1, SB024_1.0-1.1, QC102	**17-Oct-2024**	**29-Oct-2024**	14-Nov-2024	✓	**30-Oct-2024**	14-Nov-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
SB002_0.0-0.1, SB002_0.5-0.6	**17-Oct-2024**	**29-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	08-Dec-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
SB002_0.0-0.1, SB002_0.5-0.6	**17-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	31-Oct-2024	✓
Soil Glass Jar - Unpreserved (EP071)							
SB002_0.0-0.1, SB002_0.5-0.6	**17-Oct-2024**	**29-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	08-Dec-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
SB002_0.0-0.1, SB002_0.5-0.6	**17-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	31-Oct-2024	✓
Soil Glass Jar - Unpreserved (EP071)							
SB002_0.0-0.1, SB002_0.5-0.6	**17-Oct-2024**	**29-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	08-Dec-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
SB002_0.0-0.1, SB002_0.5-0.6	**17-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	31-Oct-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, SB024_0.0-0.1, SB024_1.0-1.1, QC101, QC102	**17-Oct-2024**	**25-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	04-Dec-2024	✓
HDPE Soil Jar (EP231X)							
SB002_0.0-0.1, SB002_0.5-0.6, SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1	**17-Oct-2024**	**28-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	07-Dec-2024	✓

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
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, SB024_0.0-0.1, SB024_1.0-1.1, QC101, QC102	**17-Oct-2024**	**25-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	04-Dec-2024	✓
HDPE Soil Jar (EP231X) SB002_0.0-0.1, SB002_0.5-0.6, SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1	**17-Oct-2024**	**28-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	07-Dec-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, SB024_0.0-0.1, SB024_1.0-1.1, QC101, QC102	**17-Oct-2024**	**25-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	04-Dec-2024	✓
HDPE Soil Jar (EP231X) SB002_0.0-0.1, SB002_0.5-0.6, SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1	**17-Oct-2024**	**28-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	07-Dec-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, SB024_0.0-0.1, SB024_1.0-1.1, QC101, QC102	**17-Oct-2024**	**25-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	04-Dec-2024	✓
HDPE Soil Jar (EP231X) SB002_0.0-0.1, SB002_0.5-0.6, SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1	**17-Oct-2024**	**28-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	07-Dec-2024	✓

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) SB020_0.5-0.6, SB023_0.0-0.1, SB023_0.5-0.6, SB024_0.0-0.1, SB024_1.0-1.1, QC101, QC102	**17-Oct-2024**	**25-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	04-Dec-2024	✓
HDPE Soil Jar (EP231X) SB002_0.0-0.1, SB002_0.5-0.6, SB006_0.0-0.1, SB006_0.5-0.6, SB007_0.0-0.1, SB007_1.0-1.1, SB008_0.0-0.1, SB008_0.5-0.6, SB009_0.0-0.1, SB009_0.5-0.6, SB019_0.0-0.1, SB019_0.5-0.6, SB020_0.0-0.1	**17-Oct-2024**	**28-Oct-2024**	15-Apr-2025	✓	**28-Oct-2024**	07-Dec-2024	✓

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)							
Cations - soluble by ICP-AES	ED093S	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	31	**12.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	3	23	**13.04**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	20	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Cations - soluble by ICP-AES	ED093S	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	4	21	**19.05**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	4	23	**17.39**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Cations - soluble by ICP-AES	ED093S	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	21	**4.76**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Matrix Spikes (MS) - Continued							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
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 Schedule B(3).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Cations - soluble by ICP-AES	ED093S	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

QUALITY CONTROL REPORT

Work Order	: **EP2415682**	Page	: 1 of 19
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 18-Oct-2024
Order number	: ----	Date Analysis Commenced	: 25-Oct-2024
C-O-C number	: ----	Issue Date	: 31-Oct-2024
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 38		
No. of samples analysed	: 20		

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, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6149549)									
EP2415682-001	SB002_0.0-0.1	EG005T: Lead	7439-92-1	5	mg/kg	57	38	40.5	0% - 50%
EP2415682-021	SB019_0.0-0.1	EG005T: Zinc	7440-66-6	5	mg/kg	136	121	12.2	0% - 20%
EP2415682-001	SB002_0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	19	12.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	4	24.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	9	14.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	40	31	24.3	No Limit
EP2415682-021	SB019_0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	17	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	6	19.6	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	10	14.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	19	18	5.6	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 6150290)									
EP2415682-018	SB009_0.5-0.6	EA002: pH Value	----	0.1	pH Unit	8.9	8.9	0.0	0% - 20%
EP2415421-004	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.5	8.6	0.0	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 6150292)									
EP2415682-038	QC102	EA002: pH Value	----	0.1	pH Unit	8.9	9.0	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6148302)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6148302) - continued									
EP2415649-016	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	4.9	5.1	3.3	No Limit
EP2415649-026	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	<1.0	<1.0	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6150221)									
EP2415682-005	SB006_0.0-0.1	EA055: Moisture Content	----	0.1 (1.0)*	%	22.4	21.4	4.8	0% - 20%
EP2415682-025	SB020_0.0-0.1	EA055: Moisture Content	----	0.1 (1.0)*	%	12.5	11.8	5.6	0% - 50%
ED040S: Soluble Major Anions (QC Lot: 6150288)									
EP2415682-018	SB009_0.5-0.6	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.0	No Limit
EP2415421-004	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 6150295)									
EP2415682-038	QC102	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6150287)									
EP2415682-018	SB009_0.5-0.6	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
EP2415421-004	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6150294)									
EP2415682-038	QC102	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
ED093S: Soluble Major Cations (QC Lot: 6150286)									
EP2415682-018	SB009_0.5-0.6	ED093S: Calcium	7440-70-2	10	mg/kg	50	50	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	<10	<10	0.0	No Limit
EP2415421-004	Anonymous	ED093S: Calcium	7440-70-2	10	mg/kg	70	70	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	20	20	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	20	20	0.0	No Limit
ED093S: Soluble Major Cations (QC Lot: 6150293)									
EP2415682-038	QC102	ED093S: Calcium	7440-70-2	10	mg/kg	50	50	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	<10	<10	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6149550)									
EP2415682-001	SB002_0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2415682-021	SB019_0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6148425)									
EP2415682-001	SB002_0.0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6148425) - continued									
EP2415682-001	SB002_0.0-0.1	EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6148423)									
EP2415547-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP2415682-001	SB002_0.0-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6148424)									
EP2415547-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	430	560	26.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	570	680	16.6	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2415682-001	SB002_0.0-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6148423)									
EP2415547-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP2415682-001	SB002_0.0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6148424)									
EP2415547-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	780	970	21.8	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	590	680	14.7	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	60	70	22.8	No Limit
EP2415682-001	SB002_0.0-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 6148423)									
EP2415547-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP2415682-001	SB002_0.0-0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6146609)									
EP2415649-021	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415682-006	SB006_0.5-0.6	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6146610)									
EP2415364-043	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	0.0002	0.0003	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0021	0.0022	7.1	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0050	0.0050	0.0	0% - 20%
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415682-038	QC102	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6146609)									
EP2415649-021	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0052	0.0049	6.9	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0024	0.0024	0.0	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0010	0.0009	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0006	0.0006	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	0.002	0.002	0.0	No Limit
EP2415682-006	SB006_0.5-0.6	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6146609) - continued									
EP2415682-006	SB006_0.5-0.6	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6146610)									
EP2415364-043	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0005	0.0006	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0007	0.0007	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0005	0.0005	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0011	0.0011	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	0.0003	0.0004	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2415682-038	QC102	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6146609)									
EP2415649-021	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6146609) - continued									
EP2415682-006	SB006_0.5-0.6	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6146610)									
EP2415364-043	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415682-038	QC102	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6146609)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6146609) - continued									
EP2415649-021	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	0.0159	0.0173	8.3	0% - 20%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	0.0058	0.0060	2.1	0% - 50%
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	0.0024	0.0026	6.8	No Limit
EP2415682-006	SB006_0.5-0.6	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6146610)									
EP2415364-043	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415682-038	QC102	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6146609)									
EP2415649-021	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0356	0.0370	3.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0329	0.0341	3.6	0% - 20%
EP2415682-006	SB006_0.5-0.6	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231P: PFAS Sums (QC Lot: 6146609) - continued									
EP2415682-006	SB006_0.5-0.6	EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6146610)									
EP2415364-043	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0109	0.0113	3.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0071	0.0072	1.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0101	0.0104	2.9	0% - 20%
EP2415682-038	QC102	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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 (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6149549)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	77.39 mg/kg	93.7	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.93 mg/kg	72.5	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	18.67 mg/kg	97.8	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	46.13 mg/kg	97.4	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	58.42 mg/kg	94.5	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	14.48 mg/kg	95.6	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	190.4 mg/kg	97.5	70.0	130
EA002: pH 1:5 (Soils) (QCLot: 6150290)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.6	102
				----	7 pH Unit	99.8	98.6	102
EA002: pH 1:5 (Soils) (QCLot: 6150292)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.6	102
				----	7 pH Unit	99.7	98.6	102
ED040S: Soluble Major Anions (QCLot: 6150288)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	105	91.7	116
ED040S: Soluble Major Anions (QCLot: 6150295)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	108	91.7	116
ED045G: Chloride by Discrete Analyser (QCLot: 6150287)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	95.5	88.0	112
				<10	5000 mg/kg	104	88.0	112
ED045G: Chloride by Discrete Analyser (QCLot: 6150294)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	92.3	88.0	112
				<10	5000 mg/kg	105	88.0	112
ED093S: Soluble Major Cations (QCLot: 6150286)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	102	89.2	109
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	100	88.3	110
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	101	89.4	118
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	98.6	89.4	101
ED093S: Soluble Major Cations (QCLot: 6150293)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	105	89.2	109

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED093S: Soluble Major Cations (QCLot: 6150293) - continued								
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	103	88.3	110
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	104	89.4	118
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	101	89.4	101
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6149550)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.115 mg/kg	78.7	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 6148425)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	74.3	46.0	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	101	53.0	133
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	45.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	46.0	122
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	47.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	69.5	40.0	118
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	47.0	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	71.2	41.0	119
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	72.7	43.0	119
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	41.0	131
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	72.8	41.0	119
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	82.5	41.0	127
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.4	44.0	122
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	66.3	37.0	129
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	41.0	127
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	65.8	42.0	122
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	80.9	31.2	117
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	64.4	38.0	120
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	65.6	31.4	125
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	70.4	31.2	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	60.8	24.7	125
EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148423)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	35 mg/kg	103	66.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148424)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	1666 mg/kg	83.3	70.0	111
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2937 mg/kg	73.6	71.9	109
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	477 mg/kg	72.8	63.8	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148423)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	101	66.0	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148424)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	2315 mg/kg	80.7	72.8	110
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	2594 mg/kg	73.8	67.8	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	157 mg/kg	73.7	50.3	123
EP080: BTEXN (QCLot: 6148423)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	99.7	72.0	122
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	98.4	75.0	119
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	99.5	73.0	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	102	74.0	122
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	100.0	75.0	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	92.4	64.0	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6146609)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	95.2	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	87.3	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	73.6	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	91.5	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	93.7	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	85.3	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	92.1	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	94.2	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6146610)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	102	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	88.6	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.6	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	89.8	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	95.8	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	89.6	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	90.8	70.0	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	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6146610) - continued								
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	93.3	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6146609)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	91.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.2	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.6	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	114	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6146610)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	98.2	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.0	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	105	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	98.4	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6146609)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	99.0	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	84.3	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	99.0	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	98.4	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	63.0	144

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6146609) - continued								
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6146610)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	80.8	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	83.3	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	103	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	88.8	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6146609)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	94.4	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	99.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	90.8	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	99.6	54.8	124
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6146610)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	101	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	97.5	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	113	54.8	124
EP231P: PFAS Sums (QCLot: 6146609)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231P: PFAS Sums (QCLot: 6146610)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

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**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6149549)							
EP2415682-001	SB002_0.0-0.1	EG005T: Lead	7439-92-1	50 mg/kg	76.2	70.0	130
EP2415682-001	SB002_0.0-0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70.0	130
		EG005T: Cadmium	7440-43-9	12.5 mg/kg	98.8	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	104	70.0	130
		EG005T: Copper	7440-50-8	50 mg/kg	106	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	101	70.0	130
		EG005T: Zinc	7440-66-6	50 mg/kg	92.6	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6150287)							
EP2415421-033	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/kg	102	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6149550)							
EP2415682-001	SB002_0.0-0.1	EG035T: Mercury	7439-97-6	1 mg/kg	94.2	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 6148425)							
EP2415682-002	SB002_0.5-0.6	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	85.6	57.9	124
		EP068: Heptachlor	76-44-8	0.5 mg/kg	69.5	57.4	135
		EP068: Aldrin	309-00-2	0.5 mg/kg	84.1	59.6	125
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.0	62.2	131
		EP068: Endrin	72-20-8	0.5 mg/kg	78.2	55.8	138
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	69.9	50.5	145
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148423)							
EP2415547-006	Anonymous	EP080: C6 - C9 Fraction	----	24 mg/kg	80.8	69.1	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148424)							
EP2415547-006	Anonymous	EP071: C10 - C14 Fraction	----	1666 mg/kg	87.2	64.7	126
		EP071: C15 - C28 Fraction	----	2937 mg/kg	78.4	61.7	124
		EP071: C29 - C36 Fraction	----	477 mg/kg	73.4	64.6	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148423)							
EP2415547-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	29 mg/kg	78.1	69.1	135
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148424)							
EP2415547-006	Anonymous	EP071: >C10 - C16 Fraction	----	2315 mg/kg	84.5	64.7	126
		EP071: >C16 - C34 Fraction	----	2594 mg/kg	78.5	61.7	124
		EP071: >C34 - C40 Fraction	----	157 mg/kg	# Not Determined	64.6	131
EP080: BTEXN (QCLot: 6148423)							
EP2415547-006	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	81.3	76.4	118
		EP080: Toluene	108-88-3	2 mg/kg	83.6	67.4	112

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6146609)							
EP2415649-022	Anonymous	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	110	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	94.5	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	73.0	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	93.6	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	96.6	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	92.0	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	98.3	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	99.6	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6146610)							
EP2415364-044	Anonymous	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	101	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	81.7	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	79.3	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	# Not Determined	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	110	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	# Not Determined	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	127	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6146609)							
EP2415649-022	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	86.2	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	126	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	122	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	105	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	95.8	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	87.9	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	79.2	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	94.3	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	116	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	117	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	112	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6146610)							
EP2415364-044	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	95.9	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	123	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	# Not Determined	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	82.7	71.0	131

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6146610) - continued							
EP2415364-044	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	# Not Determined	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	106	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	95.5	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	95.3	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	125	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	126	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	100	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6146609)							
EP2415649-022	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	86.4	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	107	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	91.5	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	101	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	85.7	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	96.4	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	98.8	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6146610)							
EP2415364-044	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	89.1	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	106	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	80.6	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	106	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	100	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	93.2	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	107	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6146609)							
EP2415649-022	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	99.6	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	# Not Determined	64.0	140

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6146609) - continued							
EP2415649-022	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	# Not Determined	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	64.0	60.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6146610)							
EP2415364-044	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	95.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	# Not Determined	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	# Not Determined	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	96.2	60.0	130

CERTIFICATE OF ANALYSIS

Work Order	: **EP2415682**	Page	: 1 of 17
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 18-Oct-2024 13:00
Order number	: ----	Date Analysis Commenced	: 25-Oct-2024
C-O-C number	: ----	Issue Date	: 31-Oct-2024 10:41
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 38		
No. of samples analysed	: 20		

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, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB002_0.0-0.1	SB002_0.5-0.6	SB006_0.0-0.1	SB006_0.5-0.6	SB007_0.0-0.1
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-001	EP2415682-002	EP2415682-005	EP2415682-006	EP2415682-009
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		8.6	9.0	9.0	9.3	8.6
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		19.6	15.0	22.4	3.0	24.4
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		----	----	<10	<10	<10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		----	----	<10	<10	<10
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		----	----	100	100	120
Magnesium	7439-95-4	10	mg/kg		----	----	<10	<10	<10
Sodium	7440-23-5	10	mg/kg		----	----	<10	<10	<10
Potassium	7440-09-7	10	mg/kg		----	----	<10	<10	<10
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		16	19	9	9	10
Copper	7440-50-8	5	mg/kg		10	<5	5	5	<5
Lead	7439-92-1	5	mg/kg		57	6	29	18	17
Nickel	7440-02-0	2	mg/kg		6	4	6	6	4
Zinc	7440-66-6	5	mg/kg		40	<5	15	13	7
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB002_0.0-0.1	SB002_0.5-0.6	SB006_0.0-0.1	SB006_0.5-0.6	SB007_0.0-0.1
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-001	EP2415682-002	EP2415682-005	EP2415682-006	EP2415682-009
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg		<0.05	<0.05	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB002_0.0-0.1	SB002_0.5-0.6	SB006_0.0-0.1	SB006_0.5-0.6	SB007_0.0-0.1
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415682-001	EP2415682-002	EP2415682-005	EP2415682-006	EP2415682-009
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0003**	**0.0005**	<0.0002	<0.0002	**0.0003**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB002_0.0-0.1	SB002_0.5-0.6	SB006_0.0-0.1	SB006_0.5-0.6	SB007_0.0-0.1
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415682-001	EP2415682-002	EP2415682-005	EP2415682-006	EP2415682-009
				Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB002_0.0-0.1	SB002_0.5-0.6	SB006_0.0-0.1	SB006_0.5-0.6	SB007_0.0-0.1
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-001	EP2415682-002	EP2415682-005	EP2415682-006	EP2415682-009
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<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	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0003**	**0.0005**	<0.0002	<0.0002	**0.0003**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0003**	**0.0005**	<0.0002	<0.0002	**0.0003**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0003**	**0.0005**	<0.0002	<0.0002	**0.0003**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**73.7**	**68.8**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**42.9**	**42.3**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**75.1**	**81.1**	----	----	----
Toluene-D8	2037-26-5	0.2	%		**71.8**	**80.0**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**72.4**	**79.7**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**102**	**98.5**	**98.0**	**96.0**	**98.0**
13C8-PFOA	----	0.0002	%		**95.0**	**98.5**	**96.0**	**99.0**	**92.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB007_1.0-1.1	SB008_0.0-0.1	SB008_0.5-0.6	SB009_0.0-0.1	SB009_0.5-0.6
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-011	EP2415682-013	EP2415682-014	EP2415682-017	EP2415682-018
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**9.2**	**8.6**	**9.0**	**9.0**	**8.9**
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**14.2**	**15.1**	**7.5**	**4.1**	**23.0**
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		**20**	<10	<10	<10	<10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		<10	<10	<10	<10	<10
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		**290**	**140**	**190**	**40**	**50**
Magnesium	7439-95-4	10	mg/kg		<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg		<10	<10	<10	<10	<10
Potassium	7440-09-7	10	mg/kg		<10	<10	<10	<10	<10
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**12**	**15**	**13**	**9**	**9**
Copper	7440-50-8	5	mg/kg		<5	**26**	<5	<5	<5
Lead	7439-92-1	5	mg/kg		<5	**58**	**6**	**13**	<5
Nickel	7440-02-0	2	mg/kg		<2	**25**	**4**	**3**	<2
Zinc	7440-66-6	5	mg/kg		<5	**54**	**6**	**6**	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB007_1.0-1.1	SB008_0.0-0.1	SB008_0.5-0.6	SB009_0.0-0.1	SB009_0.5-0.6
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-011	EP2415682-013	EP2415682-014	EP2415682-017	EP2415682-018
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	**0.0006**	**0.0002**	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB007_1.0-1.1	SB008_0.0-0.1	SB008_0.5-0.6	SB009_0.0-0.1	SB009_0.5-0.6
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415682-011	EP2415682-013	EP2415682-014	EP2415682-017	EP2415682-018
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	**0.0006**	**0.0002**	<0.0002	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	**0.0006**	**0.0002**	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	**0.0006**	**0.0002**	<0.0002	<0.0002
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**99.0**	**95.5**	**100**	**104**	**102**
13C8-PFOA	----	0.0002	%	**95.0**	**100**	**89.0**	**95.5**	**95.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB019_0.0-0.1	SB019_0.5-0.6	SB020_0.0-0.1	SB020_0.5-0.6	SB023_0.0-0.1
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-021	EP2415682-022	EP2415682-025	EP2415682-026	EP2415682-029
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		8.5	8.7	8.7	8.7	8.6
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		13.8	6.1	12.5	22.2	6.9
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		<10	<10	<10	<10	<10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		<10	<10	20	<10	<10
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		80	60	70	80	50
Magnesium	7439-95-4	10	mg/kg		<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg		10	<10	20	10	<10
Potassium	7440-09-7	10	mg/kg		30	20	<10	<10	<10
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		7	6	6	10	5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		18	19	41	59	29
Copper	7440-50-8	5	mg/kg		12	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg		19	11	<5	<5	5
Nickel	7440-02-0	2	mg/kg		6	<2	2	2	<2
Zinc	7440-66-6	5	mg/kg		136	10	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB019_0.0-0.1	SB019_0.5-0.6	SB020_0.0-0.1	SB020_0.5-0.6	SB023_0.0-0.1
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-021	EP2415682-022	EP2415682-025	EP2415682-026	EP2415682-029
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0003**	**0.0003**	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB019_0.0-0.1	SB019_0.5-0.6	SB020_0.0-0.1	SB020_0.5-0.6	SB023_0.0-0.1
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-021	EP2415682-022	EP2415682-025	EP2415682-026	EP2415682-029
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0003**	**0.0003**	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0003**	**0.0003**	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0003**	**0.0003**	<0.0002	<0.0002	<0.0002
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**103**	**104**	**92.0**	**95.5**	**99.5**
13C8-PFOA	----	0.0002	%		**94.5**	**93.5**	**93.5**	**93.0**	**95.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB023_0.5-0.6	SB024_0.0-0.1	SB024_1.0-1.1	QC101	QC102
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-030	EP2415682-033	EP2415682-035	EP2415682-037	EP2415682-038
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		8.3	8.1	6.4	8.1	8.9
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		21.3	10.0	4.6	26.4	6.9
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		<10	<10	<10	20	<10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		<10	<10	<10	40	<10
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		30	20	<10	130	50
Magnesium	7439-95-4	10	mg/kg		<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg		<10	<10	<10	20	<10
Potassium	7440-09-7	10	mg/kg		<10	<10	<10	20	<10
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		7	7	9	6	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		35	38	43	18	9
Copper	7440-50-8	5	mg/kg		<5	<5	<5	14	<5
Lead	7439-92-1	5	mg/kg		<5	5	<5	50	7
Nickel	7440-02-0	2	mg/kg		<2	2	<2	10	2
Zinc	7440-66-6	5	mg/kg		<5	<5	<5	51	5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB023_0.5-0.6	SB024_0.0-0.1	SB024_1.0-1.1	QC101	QC102
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415682-030	EP2415682-033	EP2415682-035	EP2415682-037	EP2415682-038
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0006**	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB023_0.5-0.6	SB024_0.0-0.1	SB024_1.0-1.1	QC101	QC102
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415682-030	EP2415682-033	EP2415682-035	EP2415682-037	EP2415682-038
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0006**	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0006**	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0006**	<0.0002
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**99.0**	**90.0**	**95.5**	**98.0**	**104**
13C8-PFOA	----	0.0002	%	**98.5**	**100**	**97.0**	**101**	**96.0**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	53	152
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	28	152
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	132
Toluene-D8	2037-26-5	66	125
4-Bromofluorobenzene	460-00-4	60	124
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

R1 22/10 83J

Mandatory Fields | **CHAIN OF CUSTODY**

Page ___of___

CLIENT:	SENVERSA PTY LTD
PROJECT MANAGER:	Paul Monaco
SAMPLER:	DL
PHONE / MOBILE:	0434 152 090
SAMPLER MOBILE:	0408 158 425
OFFICE:	
ALS QUOTE # (Client's Ref.):	EPSSENVERSA010
PURCHASE ORDER #:	
PROJECT:	
SUB-PROJECT:	PITSEA WIRING Contract 028
SITE:	Arrowhead Road
SAMPLES TO:	waplaboratory@senversa.com.au; paul.monaco@senversa.com.au
REPORTS TO:	paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au

* STORAGE REQUIREMENTS: X Standard Storage; ☐ Extended Storage; Specify Disposal Date:

* TURNAROUND: X 3 – Next Day Analytical; ☐ 2 Day (+25%); ☐ 1 Day (+50%)

ANALYSIS REQUIRED

Date	Sample ID	Depth	Sampling Media	Bottle Type	Sediment Laboratory	Sediment Geotechnical	Sediment Metals	Sediment pH	Sediment Speciation	Sediment Nitrate	Sediment Nitrite	Sediment Moisture	Sediment Total Phosphorus	Sediment Total Kjeldahl Nitrogen (TKN)	Sediment Ammonia	Sediment Total Nitrogen	Sediment Oil & Grease	Sediment Total Recoverable Hydrocarbons	Sediment PAH/Phenols	Sediment Organochlorine Pesticides	Sediment Organophosphorus Pesticides	Sediment PCBs	Sediment Total Organic Carbon	Sediment Asbestos	Sediment Perfluorinated Compounds	Sediment Acid Sulfate Soils	Sediment Total Recoverable Hydrocarbons - 1 Day	Sediment Volatile Organic Compounds	Sediment Phenols	Sediment Polycyclic Aromatic Hydrocarbons	Sediment Total	Suspended Solids (SS)	Hold
1	SB010_0.0-0.1			1	X		X	X	X																								
2	SB010_0.5-0.6			1	X		X	X	X																								
3	SB010_1.0-1.1			1																											X		
4	SB010_1.9-2.0			1																											X		
5	SB011_0.0-0.1			1	X		X	X	X																								
6	SB011_0.5-0.6			1	X		X	X	X																								
7	SB011_1.0-1.1			1																											X		
8	SB011_1.9-2.0			1																											X		
	SB012_0.0-0.1			1																											X		
SNR	SB012_0.5-0.6			1																											X		
	SB012_1.0-1.1			1																											X		
	SB012_1.9-2.0			1																											X		
	SB013_0.0-0.1			1																											X		
SNR	SB013_0.5-0.6			1																											X		
	SB013_1.0-1.1			1																											X		
	SB013_1.9-2.0			1																											X		
9	SB014_0.0-0.1			1	X		X	X	X																								
10	SB014_0.5-0.6			1	X		X	X	X																								
11	SB014_1.0-1.1			1																											X		
12	SB014_1.9-2.0			1																											X		
	SB019_0.0-0.1			1	X		X	X	X																								
	SB019_0.5-0.6			1	X		X	X	X																								
	SB019_1.0-1.1			1																											X		
SNR	SB019_1.9-2.0			1																											X		
	SB020_0.0-0.1			1	X		X	X	X																								
	SB020_0.5-0.6			1	X		X	X	X																								
	SB020_1.0-1.1			1																											X		
	SB020_1.9-2.0			1																											X		
13	SB021_0.0-0.1			1	X		X	X	X																								
14	SB021_0.5-0.6			1	X		X	X	X																								
15	SB021_1.0-1.1			1																											X		
16	SB021_1.9-2.0			1																											X		
17	SB022_0.0-0.1			1	X		X	X	X																								
18	SB022_0.5-0.6			1																											X		
19	SB022_1.0-1.1			1																											X		
20	SB022_2.0-2.1			1																											X		
21	SB022_3.0-3.1			1																											X		
22	SB022_4.0-4.1			1																											X		
23	SB022_5.0-5.1			1																											X		
24	SB022_6.0-6.1			1	X		X	X	X																								
25	SB022_6.9-7.0			1																											X		
	SB023_0.0-0.1			1	X		X	X	X																								
	SB023_0.5-0.6			1	X		X	X	X																								
SNR	SB023_1.0-1.1			1																											X		
	SB023_1.9-2.0			1																											X		
	SB024_0.0-0.1			1	X		X	X	X																								
	SB024_0.5-0.6			1																											X		
	SB024_1.0-1.1			1	X		X	X	X																								
	SB024_1.9-2.0			1																											X		
26	SB025_0.0-0.1			1	X		X	X	X																								
27	SB025_0.5-0.6			1																											X		
28	SB025_1.0-1.1			1																											X		
29	SB025_2.0-2.1			1																											X		
30	SB025_3.0-3.1			1																											X		
31	SB025_4.0-4.1			1																											X		
32	SB025_4.9-5.0			1	X		X	X	X																								
33	SB026_0.0-0.1			1	X		X	X	X																								
34	SB026_0.5-0.6			1																											X		
35	SB026_1.0-1.1			1																											X		
36	SB026_2.0-2.1			1																											X		
37	SB026_3.0-3.1			1																											X		
38	SB026_4.0-4.1			1																											X		
39	SB026_5.0-5.1			1																											X		
40	SB026_6.0-6.1			1																											X		
41	SB026_6.9-7.0			1	X		X	X	X																								
42	QC103			1	X		X	X	X																								
43	QC302			1	X		X																										
44	QC502			1	X		X																										
—	QC203																																

Please forward to Eurofins

Environmental Division
Perth
Work Order Reference
EP2415807

Telephone : – 61-8-9406 1301

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2415807**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 4
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: CL		

Dates

Date Samples Received	: 18-Oct-2024 17:30	Issue Date	: 26-Oct-2024
Client Requested Due Date	: 01-Nov-2024	Scheduled Reporting Date	: **01-Nov-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 16.2 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 44 / 17

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Sulfide as S2- : EK085		
QC302	- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Zinc Acetate/NaOH
Total Metals by ICP-MS - Suite A : EG020A-T		
QC302	- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Nitric Acid; Unfiltered

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - S-02 8 Metals (incl. Digestion)
EP2415807-001	18-Oct-2024 00:00	SB010_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415807-002	18-Oct-2024 00:00	SB010_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415807-003	18-Oct-2024 00:00	SB010_1.0-1.1	✓						
EP2415807-004	18-Oct-2024 00:00	SB010_1.9-2.0	✓						
EP2415807-005	18-Oct-2024 00:00	SB011_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415807-006	18-Oct-2024 00:00	SB011_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415807-007	18-Oct-2024 00:00	SB011_1.0-1.1	✓						
EP2415807-008	18-Oct-2024 00:00	SB011_1.9-2.0	✓						
EP2415807-009	18-Oct-2024 00:00	SB014_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415807-010	18-Oct-2024 00:00	SB014_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415807-011	18-Oct-2024 00:00	SB014_1.0-1.1	✓						
EP2415807-012	18-Oct-2024 00:00	SB014_1.9-2.0	✓						
EP2415807-013	18-Oct-2024 00:00	SB021_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415807-014	18-Oct-2024 00:00	SB021_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415807-015	18-Oct-2024 00:00	SB021_1.0-1.1	✓						
EP2415807-016	18-Oct-2024 00:00	SB021_1.9-2.0	✓						
EP2415807-017	18-Oct-2024 00:00	SB022_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415807-018	18-Oct-2024 00:00	SB022_0.5-0.6	✓						
EP2415807-019	18-Oct-2024 00:00	SB022_1.0-1.1	✓						
EP2415807-020	18-Oct-2024 00:00	SB022_2.0-2.1	✓						
EP2415807-021	18-Oct-2024 00:00	SB022_3.0-3.1	✓						
EP2415807-022	18-Oct-2024 00:00	SB022_4.0-4.1	✓						
EP2415807-023	18-Oct-2024 00:00	SB022_5.0-5.1	✓						
EP2415807-024	18-Oct-2024 00:00	SB022_6.0-6.1		✓	✓	✓	✓	✓	✓
EP2415807-025	18-Oct-2024 00:00	SB022_6.9-7.0	✓						
EP2415807-026	18-Oct-2024 00:00	SB025_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415807-027	18-Oct-2024 00:00	SB025_0.5-0.6	✓						
EP2415807-028	18-Oct-2024 00:00	SB025_1.0-1.1	✓						
EP2415807-029	18-Oct-2024 00:00	SB025_2.0-2.1	✓						
EP2415807-030	18-Oct-2024 00:00	SB025_3.0-3.1	✓						
EP2415807-031	18-Oct-2024 00:00	SB025_4.0-4.1	✓						

			(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - S-02 8 Metals (incl. Digestion)
EP2415807-032	18-Oct-2024 00:00	SB025_4.9-5.0		✓	✓	✓	✓	✓	✓
EP2415807-033	18-Oct-2024 00:00	SB026_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415807-034	18-Oct-2024 00:00	SB026_0.5-0.6	✓						
EP2415807-035	18-Oct-2024 00:00	SB026_1.0-1.1	✓						
EP2415807-036	18-Oct-2024 00:00	SB026_2.0-2.1	✓						
EP2415807-037	18-Oct-2024 00:00	SB026_3.0-3.1	✓						
EP2415807-038	18-Oct-2024 00:00	SB026_4.0-4.1	✓						
EP2415807-039	18-Oct-2024 00:00	SB026_5.0-5.1	✓						
EP2415807-040	18-Oct-2024 00:00	SB026_6.0-6.1	✓						
EP2415807-041	18-Oct-2024 00:00	SB026_6.9-7.0		✓	✓	✓	✓	✓	✓
EP2415807-042	18-Oct-2024 00:00	QC103		✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - ASSGW-2 Acid Sulphate Soil GW Suite - Extended	WATER - EP231X PFAS - Full Suite (31 analytes)
EP2415807-043	18-Oct-2024 00:00	QC302	✓	✓
EP2415807-044	18-Oct-2024 00:00	QC502		✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

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

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA005-P: pH by Auto Titrator							
QC302	Clear Plastic Bottle - Natural	----	18-Oct-2024	18-Oct-2024	✓	22-Oct-2024	×
EK071G: Reactive Phosphorus as P-By Discrete Analyser							
QC302	Clear Plastic Bottle - Natural	----	20-Oct-2024	18-Oct-2024	✓	22-Oct-2024	×
EK085: Sulfide as S2-							
QC302	Clear Plastic Bottle - Natural	----	19-Oct-2024	18-Oct-2024	✓	22-Oct-2024	×

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2415807**	Page	: 1 of 14
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 18-Oct-2024
Site	: Anketell Road	Issue Date	: 01-Nov-2024
Sampler	: CL	No. of samples received	: 44
Order number	: ----	No. of samples analysed	: 17

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, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	EP2415892--001	Anonymous	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
SB010_0.0-0.1,	SB010_0.5-0.6,	01-Nov-2024	25-Oct-2024	**7**	----	----	----
SB011_0.0-0.1,	SB011_0.5-0.6,						
SB014_0.0-0.1,	SB014_0.5-0.6,						
SB021_0.0-0.1,	SB021_0.5-0.6,						
SB022_0.0-0.1,	SB022_6.0-6.1,						
SB025_0.0-0.1,	SB025_4.9-5.0,						
SB026_0.0-0.1,	SB026_6.9-7.0,						
QC103							

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
QC302	----	----	----	01-Nov-2024	18-Oct-2024	**14**
EA015: Total Dissolved Solids dried at 180 ± 5 °C						
Clear Plastic Bottle - Natural						
QC302	----	----	----	28-Oct-2024	25-Oct-2024	**3**
EK071G: Reactive Phosphorus as P by discrete analyser						
Clear Plastic Bottle - Natural						
QC302	----	----	----	29-Oct-2024	20-Oct-2024	**9**
EK085M: Sulfide as S2-						
Clear Plastic Bottle - Natural						
QC302	----	----	----	28-Oct-2024	19-Oct-2024	**9**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)						
Total Metals by ICP-MS - Suite A	EG020A-T	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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*
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
SB010_0.0-0.1,	SB010_0.5-0.6,	**18-Oct-2024**	**01-Nov-2024**	25-Oct-2024	×	**01-Nov-2024**	01-Nov-2024	✓
SB011_0.0-0.1,	SB011_0.5-0.6,							
SB014_0.0-0.1,	SB014_0.5-0.6,							
SB021_0.0-0.1,	SB021_0.5-0.6,							
SB022_0.0-0.1,	SB022_6.0-6.1,							
SB025_0.0-0.1,	SB025_4.9-5.0,							
SB026_0.0-0.1,	SB026_6.9-7.0,							
QC103								
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
SB010_0.0-0.1,	SB010_0.5-0.6,	**18-Oct-2024**	**----**	----	----	**29-Oct-2024**	01-Nov-2024	✓
SB011_0.0-0.1,	SB011_0.5-0.6,							
SB014_0.0-0.1,	SB014_0.5-0.6,							
SB021_0.0-0.1,	SB021_0.5-0.6,							
SB022_0.0-0.1,	SB022_6.0-6.1,							
SB025_0.0-0.1,	SB025_4.9-5.0,							
SB026_0.0-0.1,	SB026_6.9-7.0,							
QC103								

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
ED040S : Soluble Sulfate by ICPAES								
Soil Glass Jar - Unpreserved (ED040S)								
SB010_0.0-0.1,	SB010_0.5-0.6,	**18-Oct-2024**	**01-Nov-2024**	15-Nov-2024	✓	**01-Nov-2024**	29-Nov-2024	✓
SB011_0.0-0.1,	SB011_0.5-0.6,							
SB014_0.0-0.1,	SB014_0.5-0.6,							
SB021_0.0-0.1,	SB021_0.5-0.6,							
SB022_0.0-0.1,	SB022_6.0-6.1,							
SB025_0.0-0.1,	SB025_4.9-5.0,							
SB026_0.0-0.1,	SB026_6.9-7.0,							
QC103								
ED045G: Chloride by Discrete Analyser								
Soil Glass Jar - Unpreserved (ED045G)								
SB010_0.0-0.1,	SB010_0.5-0.6,	**18-Oct-2024**	**01-Nov-2024**	15-Nov-2024	✓	**01-Nov-2024**	29-Nov-2024	✓
SB011_0.0-0.1,	SB011_0.5-0.6,							
SB014_0.0-0.1,	SB014_0.5-0.6,							
SB021_0.0-0.1,	SB021_0.5-0.6,							
SB022_0.0-0.1,	SB022_6.0-6.1,							
SB025_0.0-0.1,	SB025_4.9-5.0,							
SB026_0.0-0.1,	SB026_6.9-7.0,							
QC103								
ED093S: Soluble Major Cations								
Soil Glass Jar - Unpreserved (ED093S)								
SB010_0.0-0.1,	SB010_0.5-0.6,	**18-Oct-2024**	**01-Nov-2024**	16-Apr-2025	✓	**01-Nov-2024**	16-Apr-2025	✓
SB011_0.0-0.1,	SB011_0.5-0.6,							
SB014_0.0-0.1,	SB014_0.5-0.6,							
SB021_0.0-0.1,	SB021_0.5-0.6,							
SB022_0.0-0.1,	SB022_6.0-6.1,							
SB025_0.0-0.1,	SB025_4.9-5.0,							
SB026_0.0-0.1,	SB026_6.9-7.0,							
QC103								
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
SB010_0.0-0.1,	SB010_0.5-0.6,	**18-Oct-2024**	**31-Oct-2024**	16-Apr-2025	✓	**01-Nov-2024**	16-Apr-2025	✓
SB011_0.0-0.1,	SB011_0.5-0.6,							
SB014_0.0-0.1,	SB014_0.5-0.6,							
SB021_0.0-0.1,	SB021_0.5-0.6,							
SB022_0.0-0.1,	SB022_6.0-6.1,							
SB025_0.0-0.1,	SB025_4.9-5.0,							
SB026_0.0-0.1,	SB026_6.9-7.0,							
QC103								

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
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
SB010_0.0-0.1, SB010_0.5-0.6, SB011_0.0-0.1, SB011_0.5-0.6, SB014_0.0-0.1, SB014_0.5-0.6, SB021_0.0-0.1, SB021_0.5-0.6, SB022_0.0-0.1, SB022_6.0-6.1, SB025_0.0-0.1, SB025_4.9-5.0, SB026_0.0-0.1, SB026_6.9-7.0, QC103	**18-Oct-2024**	**31-Oct-2024**	15-Nov-2024	✓	**31-Oct-2024**	15-Nov-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
SB010_0.0-0.1, SB010_0.5-0.6, SB011_0.0-0.1, SB011_0.5-0.6, SB014_0.0-0.1, SB014_0.5-0.6, SB021_0.0-0.1, SB021_0.5-0.6, SB022_0.0-0.1, SB022_6.0-6.1, SB025_0.0-0.1, SB025_4.9-5.0, SB026_0.0-0.1, SB026_6.9-7.0, QC103	**18-Oct-2024**	**30-Oct-2024**	16-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
SB010_0.0-0.1, SB010_0.5-0.6, SB011_0.0-0.1, SB011_0.5-0.6, SB014_0.0-0.1, SB014_0.5-0.6, SB021_0.0-0.1, SB021_0.5-0.6, SB022_0.0-0.1, SB022_6.0-6.1, SB025_0.0-0.1, SB025_4.9-5.0, SB026_0.0-0.1, SB026_6.9-7.0, QC103	**18-Oct-2024**	**30-Oct-2024**	16-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
SB010_0.0-0.1, SB010_0.5-0.6, SB011_0.0-0.1, SB011_0.5-0.6, SB014_0.0-0.1, SB014_0.5-0.6, SB021_0.0-0.1, SB021_0.5-0.6, SB022_0.0-0.1, SB022_6.0-6.1, SB025_0.0-0.1, SB025_4.9-5.0, SB026_0.0-0.1, SB026_6.9-7.0, QC103	**18-Oct-2024**	**30-Oct-2024**	16-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓

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
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
SB010_0.0-0.1, SB010_0.5-0.6, SB011_0.0-0.1, SB011_0.5-0.6, SB014_0.0-0.1, SB014_0.5-0.6, SB021_0.0-0.1, SB021_0.5-0.6, SB022_0.0-0.1, SB022_6.0-6.1, SB025_0.0-0.1, SB025_4.9-5.0, SB026_0.0-0.1, SB026_6.9-7.0, QC103	**18-Oct-2024**	**30-Oct-2024**	16-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
SB010_0.0-0.1, SB010_0.5-0.6, SB011_0.0-0.1, SB011_0.5-0.6, SB014_0.0-0.1, SB014_0.5-0.6, SB021_0.0-0.1, SB021_0.5-0.6, SB022_0.0-0.1, SB022_6.0-6.1, SB025_0.0-0.1, SB025_4.9-5.0, SB026_0.0-0.1, SB026_6.9-7.0, QC103	**18-Oct-2024**	**30-Oct-2024**	16-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓

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
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
QC302	**18-Oct-2024**	**----**	----	----	**01-Nov-2024**	18-Oct-2024	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
QC302	**18-Oct-2024**	**----**	----	----	**01-Nov-2024**	15-Nov-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
QC302	**18-Oct-2024**	**----**	----	----	**28-Oct-2024**	25-Oct-2024	×
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
QC302	**18-Oct-2024**	**----**	----	----	**01-Nov-2024**	01-Nov-2024	✓
ED038A: Acidity							
Clear Plastic Bottle - Natural (ED038)							
QC302	**18-Oct-2024**	**----**	----	----	**30-Oct-2024**	01-Nov-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
QC302	**18-Oct-2024**	**----**	----	----	**29-Oct-2024**	15-Nov-2024	✓

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
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
QC302	**18-Oct-2024**	**----**	----	**----**	**29-Oct-2024**	15-Nov-2024	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Filtered; Lab-acidified (ED093F)							
QC302	**18-Oct-2024**	**----**	----	**----**	**30-Oct-2024**	15-Nov-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F)							
QC302	**18-Oct-2024**	**----**	----	**----**	**30-Oct-2024**	16-Apr-2025	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T)							
QC302	**18-Oct-2024**	**31-Oct-2024**	16-Apr-2025	✓	**31-Oct-2024**	16-Apr-2025	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
QC302	**18-Oct-2024**	**----**	----	**----**	**28-Oct-2024**	15-Nov-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
QC302	**18-Oct-2024**	**----**	----	**----**	**28-Oct-2024**	15-Nov-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
QC302	**18-Oct-2024**	**31-Oct-2024**	15-Nov-2024	✓	**31-Oct-2024**	15-Nov-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
QC302	**18-Oct-2024**	**31-Oct-2024**	15-Nov-2024	✓	**31-Oct-2024**	15-Nov-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
QC302	**18-Oct-2024**	**----**	----	**----**	**29-Oct-2024**	20-Oct-2024	×
EK085M: Sulfide as S2-							
Clear Plastic Bottle - Natural (EK085)							
QC302	**18-Oct-2024**	**----**	----	**----**	**28-Oct-2024**	19-Oct-2024	×
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC302, QC502	**18-Oct-2024**	**28-Oct-2024**	16-Apr-2025	✓	**29-Oct-2024**	16-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
QC302, QC502	**18-Oct-2024**	**28-Oct-2024**	16-Apr-2025	✓	**29-Oct-2024**	16-Apr-2025	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
QC302, QC502	**18-Oct-2024**	**28-Oct-2024**	16-Apr-2025	✓	**29-Oct-2024**	16-Apr-2025	✓

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
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC302, QC502	**18-Oct-2024**	**28-Oct-2024**	16-Apr-2025	✓	**29-Oct-2024**	16-Apr-2025	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
QC302, QC502	**18-Oct-2024**	**28-Oct-2024**	16-Apr-2025	✓	**29-Oct-2024**	16-Apr-2025	✓

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)							
Cations - soluble by ICP-AES	ED093S	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Cations - soluble by ICP-AES	ED093S	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Cations - soluble by ICP-AES	ED093S	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	15	**6.67**	**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)							
Acidity as Calcium Carbonate	ED038	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	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) - Continued							
Chloride by Discrete Analyser	ED045G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	5	**40.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Acidity as Calcium Carbonate	ED038	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	19	**5.26**	**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*	
Method Blanks (MB) - Continued							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	5	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
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 Schedule B(3).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Cations - soluble by ICP-AES	ED093S	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Acidity as Calcium Carbonate	ED038	WATER	In house: Referenced to APHA 2310 B Acidity is determined by manual titration with a standardised alkali to an end-point pH of 8.3. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Sulfide as S2-	EK085	WATER	In house: Referenced to APHA 4500-S2- D. Sulfide species present in water samples are immediately precipitated when collected in pretreated caustic/zinc acetate preserved sample containers. The sulfides are coloured using methylene blue indicator. Non-detects may be screened by comparison against a standard at half-LOR, otherwise samples are measured using UV-VIS detection at 664nm. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QUALITY CONTROL REPORT

Work Order	: **EP2415807**	Page	: 1 of 23
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 18-Oct-2024
Order number	: ----	Date Analysis Commenced	: 28-Oct-2024
C-O-C number	: ----	Issue Date	: 01-Nov-2024
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 44		
No. of samples analysed	: 17		

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, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6155833)									
EP2415807-001	SB010_0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	13	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	7	6	17.4	No Limit
EP2415807-026	SB025_0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	15	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	33	35	5.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	38	32	16.6	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 6156926)									
EP2415807-024	SB022_6.0-6.1	EA002: pH Value	----	0.1	pH Unit	9.0	9.0	0.0	0% - 20%
EP2415807-001	SB010_0.0-0.1	EA002: pH Value	----	0.1	pH Unit	9.0	9.0	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6152421)									
EP2415563-039	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	5.2	5.6	7.3	No Limit
EP2415807-013	SB021_0.0-0.1	EA055: Moisture Content	----	0.1 (1.0)*	%	4.5	4.2	6.4	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED040S: Soluble Major Anions (QC Lot: 6156928)									
EP2415807-026	SB025_0.0-0.1	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.0	No Limit
EP2415807-001	SB010_0.0-0.1	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6156927)									
EP2415807-026	SB025_0.0-0.1	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
EP2415807-001	SB010_0.0-0.1	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
ED093S: Soluble Major Cations (QC Lot: 6156929)									
EP2415807-026	SB025_0.0-0.1	ED093S: Calcium	7440-70-2	10	mg/kg	60	50	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	<10	<10	0.0	No Limit
EP2415807-001	SB010_0.0-0.1	ED093S: Calcium	7440-70-2	10	mg/kg	40	40	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	<10	<10	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6155834)									
EP2415807-001	SB010_0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2415807-026	SB025_0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6150594)									
EP2415807-001	SB010_0.0-0.1	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415807-013	SB021_0.0-0.1	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6150595)									
EP2415807-033	SB026_0.0-0.1	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6150595) - continued									
EP2415807-033	SB026_0.0-0.1	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415810-014	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6150594)									
EP2415807-001	SB010_0.0-0.1	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2415807-013	SB021_0.0-0.1	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6150595)									
EP2415807-033	SB026_0.0-0.1	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2415810-014	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6150594)									
EP2415807-001	SB010_0.0-0.1	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415807-013	SB021_0.0-0.1	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6150594) - continued									
EP2415807-013	SB021_0.0-0.1	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6150595)									
EP2415807-033	SB026_0.0-0.1	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415810-014	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6150594)									
EP2415807-001	SB010_0.0-0.1	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6150594) - continued									
EP2415807-001	SB010_0.0-0.1	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415807-013	SB021_0.0-0.1	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6150595)									
EP2415807-033	SB026_0.0-0.1	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415810-014	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6150594)									
EP2415807-001	SB010_0.0-0.1	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2415807-013	SB021_0.0-0.1	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231P: PFAS Sums (QC Lot: 6150595)									
EP2415807-033	SB026_0.0-0.1	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2415810-014	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 6157893)									
EP2415668-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.90	7.93	0.4	0% - 20%
EP2415751-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	4.22	4.21	0.2	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6157894)									
EP2415668-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2840	2800	1.4	0% - 20%
EP2415751-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1840	1830	0.1	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6148524)									
EP2415390-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	510	506	0.8	0% - 20%
EP2415447-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1510	1510	0.2	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6157895)									
EP2415668-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	286	282	1.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	286	282	1.2	0% - 20%
EP2415751-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.0	No Limit
ED038A: Acidity (QC Lot: 6152738)									
EP2415758-001	Anonymous	ED038: Acidity as CaCO3	----	1	mg/L	8	6	15.5	No Limit
EP2415892-001	Anonymous	ED038: Acidity as CaCO3	----	1	mg/L	4	3	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6150607)									
EP2415892-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	71	72	1.4	0% - 20%
EP2415893-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	515	518	0.6	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6150608)									
EP2415892-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	82	77	5.8	0% - 20%
EP2415893-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	129	128	0.0	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED093F: Dissolved Major Cations (QC Lot: 6154320)									
EP2415787-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	97	99	1.6	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	7	7	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	24	25	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
EP2415743-005	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	215	217	1.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	201	207	2.6	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	2150	2190	1.9	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	39	40	0.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6154319)									
EP2415787-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP2415743-005	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.018	0.019	0.0	0% - 50%
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	0.01	0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 6151315)									
EP2415781-001	Anonymous	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP2415850-003	Anonymous	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.01	<0.01	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 6151315) - continued									
EP2415850-003	Anonymous	EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6150621)									
EP2415892-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.11	0.11	0.0	0% - 50%
EP2415893-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.12	0.10	22.3	0% - 50%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6150622)									
EP2415892-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	3.86	3.84	0.6	0% - 20%
EP2415893-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	3.73	3.72	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6152282)									
EP2415593-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.9	1.0	0.0	No Limit
EP2415668-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.5)*	mg/L	4.4	4.4	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6152281)									
EP2415593-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.12	0.10	13.5	0% - 50%
EP2415668-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.05)*	mg/L	4.64	4.95	6.4	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6150606)									
EP2415892-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.03	0.0	No Limit
EP2415893-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK085M: Sulfide as S2- (QC Lot: 6148325)									
EP2415711-001	Anonymous	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP2415790-001	Anonymous	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.26	0.25	0.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.60	0.55	8.2	0% - 20%
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2415673-009	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.14	0.14	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.22	0.22	0.0	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2415673-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2415673-009	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6150196) - continued									
EP2415673-009	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2415673-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	1.26	1.20	4.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.86	0.80	7.2	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	1.26	1.20	4.9	0% - 20%
EP2415673-009	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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 (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6155833)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	77.39 mg/kg	107	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.93 mg/kg	72.5	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	18.67 mg/kg	99.4	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	46.13 mg/kg	103	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	58.42 mg/kg	100	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	14.48 mg/kg	98.8	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	190.4 mg/kg	94.4	70.0	130
EA002: pH 1:5 (Soils) (QCLot: 6156926)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.6	102
				----	7 pH Unit	99.8	98.6	102
ED040S: Soluble Major Anions (QCLot: 6156928)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	107	91.7	116
ED045G: Chloride by Discrete Analyser (QCLot: 6156927)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	99.7	88.0	112
				<10	5000 mg/kg	104	88.0	112
ED093S: Soluble Major Cations (QCLot: 6156929)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	104	89.2	109
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	102	88.3	110
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	100	89.4	118
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	97.0	89.4	101
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6155834)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.115 mg/kg	77.4	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150594)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	98.7	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	94.5	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.0	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	86.4	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	94.5	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	94.4	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	98.3	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150594) - continued								
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	97.1	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150595)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	96.9	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	91.4	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.0	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	87.7	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	94.5	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	90.5	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	96.2	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	94.6	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150594)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	96.6	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.6	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.6	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.2	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	94.4	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150595)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	95.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.6	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.2	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.2	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.8	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.6	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.0	133

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150594)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.9	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	97.9	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	106	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	98.9	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150595)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	93.3	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.1	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	106	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	109	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150594)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	97.4	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	100	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	98.8	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	89.2	54.8	124
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150595)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	95.7	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	97.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	102	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	118	54.8	124
EP231P: PFAS Sums (QCLot: 6150594)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 6150594) - continued								
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231P: PFAS Sums (QCLot: 6150595)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA005P: pH by PC Titrator (QCLot: 6157893)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.5	102
				----	7 pH Unit	100	98.5	102
EA010P: Conductivity by PC Titrator (QCLot: 6157894)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.2	92.1	105
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6148524)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	90.6	80.0	120
				<10	293 mg/L	99.3	80.0	120
				<10	2410 mg/L	102	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 6157895)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	117	85.1	126
				<1	200 mg/L	107	90.5	111
ED038A: Acidity (QCLot: 6152738)								
ED038: Acidity as CaCO3	----	----	mg/L	----	20.3 mg/L	103	70.0	130
				----	405.5 mg/L	91.7	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6150607)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	99.4	89.9	112
				<1	500 mg/L	105	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 6150608)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	96.4	88.6	113
				<1	1000 mg/L	99.2	88.6	113
ED093F: Dissolved Major Cations (QCLot: 6154320)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED093F: Dissolved Major Cations (QCLot: 6154320) - continued								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	104	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	106	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	111	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.9	84.6	108
EG020F: Dissolved Metals by ICP-MS (QCLot: 6154319)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	108	90.2	111
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	90.3	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	106	89.7	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	105	87.3	107
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	99.0	88.8	109
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.7	88.9	108
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	89.4	106
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	87.6	106
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.3	87.2	108
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.2	83.8	102
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	89.5	112
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	105	89.9	120
EG020T: Total Metals by ICP-MS (QCLot: 6151315)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	106	91.6	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	103	95.0	132
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6150621)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	102	86.2	111
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6150622)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	105	90.5	110
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6152282)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	99.9	80.0	115
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6152281)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	93.0	70.0	110
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6150606)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	102	89.4	109
EK085M: Sulfide as S2- (QCLot: 6148325)								
EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	0.5 mg/L	103	84.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150196)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)
						LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150196) - continued								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	94.2	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	100	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	87.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	96.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.5	65.0	140
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	0.24 µg/L	106	70.0	135
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	92.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150196)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	96.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	96.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	107	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	111	71.0	132
EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	0.25 µg/L	105	46.1	144
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150196)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	93.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	118	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	100	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	97.0	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	106	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	104	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150196)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	95.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	101	64.0	140

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150196) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	87.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	102	64.2	133
EP231P: PFAS Sums (QCLot: 6150196)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

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	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6155833)							
EP2415807-001	SB010_0.0-0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	110	70.0	130
		EG005T: Cadmium	7440-43-9	12.5 mg/kg	99.6	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70.0	130
		EG005T: Copper	7440-50-8	50 mg/kg	105	70.0	130
		EG005T: Lead	7439-92-1	50 mg/kg	99.9	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	100	70.0	130
		EG005T: Zinc	7440-66-6	50 mg/kg	95.9	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6156927)							
EP2415807-002	SB010_0.5-0.6	ED045G: Chloride	16887-00-6	1000 mg/kg	97.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6155834)							
EP2415807-001	SB010_0.0-0.1	EG035T: Mercury	7439-97-6	1 mg/kg	107	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150594)							
EP2415807-002	SB010_0.5-0.6	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	106	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	99.1	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	100	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	89.9	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	98.3	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	92.8	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	94.6	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	97.1	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150595)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150595) - continued							
EP2415807-041	SB026_6.9-7.0	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	97.8	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	86.4	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	94.0	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	91.5	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	94.5	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	87.5	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	93.3	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	95.0	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150594)							
EP2415807-002	SB010_0.5-0.6	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	100	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	96.1	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	103	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	93.7	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	105	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	98.4	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	100	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	96.0	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	95.2	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	101	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	101	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150595)							
EP2415807-041	SB026_6.9-7.0	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	90.3	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	87.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	88.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	88.0	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	88.0	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	98.8	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	87.6	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	87.6	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	92.0	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	103	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	105	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150594)							
EP2415807-002	SB010_0.5-0.6	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	102	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	104	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	94.6	60.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150594) - continued							
EP2415807-002	SB010_0.5-0.6	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	114	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	99.0	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	110	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	105	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150595)							
EP2415807-041	SB026_6.9-7.0	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	87.2	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	88.3	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	85.9	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	90.7	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	106	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	96.4	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	110	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150594)							
EP2415807-002	SB010_0.5-0.6	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	103	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	102	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	105	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	92.5	60.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150595)							
EP2415807-041	SB026_6.9-7.0	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	94.9	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	99.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	91.7	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	114	60.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6150607)							
EP2415892-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	105	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 6150608)							
EP2415892-001	Anonymous	ED045G: Chloride	16887-00-6	200 mg/L	82.7	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020F: Dissolved Metals by ICP-MS (QCLot: 6154319)							
EP2415743-004	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	110	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	105	70.0	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	98.8	70.0	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	102	70.0	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	99.0	70.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	96.2	70.0	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	99.2	70.0	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100	70.0	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	102	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6150621)							
EP2415892-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	112	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6150622)							
EP2415892-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6152282)							
EP2415593-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	94.4	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6152281)							
EP2415593-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	93.0	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6150606)							
EP2415892-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	99.5	70.0	130
EK085M: Sulfide as S2- (QCLot: 6148325)							
EP2415711-002	Anonymous	EK085: Sulfide as S2-	18496-25-8	1 mg/L	110	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150196)							
EP2415673-005	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	86.1	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	90.9	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	83.8	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	85.4	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.9	65.0	140
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.24 µg/L	92.9	70.0	135
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	80.9	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150196)							
EP2415673-005	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	88.5	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	85.7	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	85.2	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.6	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	97.3	71.0	133

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150196) - continued							
EP2415673-005	Anonymous	EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	87.8	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	89.8	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.0	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	90.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	83.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	95.6	71.0	132
		EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.25 µg/L	91.0	70.0	131
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150196)							
EP2415673-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	83.4	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	91.8	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	91.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	102	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	79.7	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	87.8	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	91.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150196)							
EP2415673-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	97.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	81.9	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	97.9	70.0	130

CERTIFICATE OF ANALYSIS

Work Order	: **EP2415807**	Page	: 1 of 17
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 18-Oct-2024 17:30
Order number	: ----	Date Analysis Commenced	: 28-Oct-2024
C-O-C number	: ----	Issue Date	: 01-Nov-2024 16:53
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 44		
No. of samples analysed	: 17		

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, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB010_0.0-0.1	SB010_0.5-0.6	SB011_0.0-0.1	SB011_0.5-0.6	SB014_0.0-0.1
			Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415807-001	EP2415807-002	EP2415807-005	EP2415807-006	EP2415807-009
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	**9.0**	**9.0**	**7.9**	**7.8**	**8.8**
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**2.4**	**3.2**	**1.1**	**3.4**	**12.0**
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	<10	<10	<10
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	<10	<10	<10	<10	<10
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	**40**	**40**	<10	<10	**70**
Magnesium	7439-95-4	10	mg/kg	<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg	<10	<10	<10	<10	<10
Potassium	7440-09-7	10	mg/kg	<10	<10	<10	<10	<10
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	**7**	**6**	**7**	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	**12**	**14**	**11**	**12**	**19**
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg	**3**	<2	<2	<2	**3**
Zinc	7440-66-6	5	mg/kg	**7**	<5	<5	<5	**8**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB010_0.0-0.1	SB010_0.5-0.6	SB011_0.0-0.1	SB011_0.5-0.6	SB014_0.0-0.1
				Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415807-001	EP2415807-002	EP2415807-005	EP2415807-006	EP2415807-009
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB010_0.0-0.1	SB010_0.5-0.6	SB011_0.0-0.1	SB011_0.5-0.6	SB014_0.0-0.1
			Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415807-001	EP2415807-002	EP2415807-005	EP2415807-006	EP2415807-009
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**93.0**	**95.5**	**105**	**97.0**	**95.0**
13C8-PFOA	----	0.0002	%	**102**	**100**	**102**	**104**	**105**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB014_0.5-0.6	SB021_0.0-0.1	SB021_0.5-0.6	SB022_0.0-0.1	SB022_6.0-6.1
				Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415807-010	EP2415807-013	EP2415807-014	EP2415807-017	EP2415807-024
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**8.9**	**8.4**	**8.3**	**8.6**	**9.0**
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**5.4**	**4.5**	**4.3**	**2.7**	**3.7**
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		<10	<10	<10	<10	<10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		<10	**10**	<10	<10	<10
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		**60**	**30**	<10	**50**	**50**
Magnesium	7439-95-4	10	mg/kg		<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg		<10	<10	<10	<10	<10
Potassium	7440-09-7	10	mg/kg		<10	**20**	<10	**10**	<10
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**6**	**6**	**7**	**8**	**7**
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**21**	**22**	**25**	**25**	**20**
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg		<5	**8**	<5	**6**	**6**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB014_0.5-0.6	SB021_0.0-0.1	SB021_0.5-0.6	SB022_0.0-0.1	SB022_6.0-6.1
				Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415807-010	EP2415807-013	EP2415807-014	EP2415807-017	EP2415807-024
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB014_0.5-0.6	SB021_0.0-0.1	SB021_0.5-0.6	SB022_0.0-0.1	SB022_6.0-6.1
			Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415807-010	EP2415807-013	EP2415807-014	EP2415807-017	EP2415807-024
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**112**	**102**	**96.5**	**99.5**	**92.5**
13C8-PFOA	----	0.0002	%	**111**	**92.5**	**97.0**	**99.0**	**93.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB025_0.0-0.1	SB025_4.9-5.0	SB026_0.0-0.1	SB026_6.9-7.0	QC103
				Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415807-026	EP2415807-032	EP2415807-033	EP2415807-041	EP2415807-042
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		9.1	9.0	9.2	9.2	9.0
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		5.8	4.2	1.2	5.8	2.4
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		<10	<10	<10	<10	<10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		<10	<10	<10	<10	10
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		60	50	30	50	50
Magnesium	7439-95-4	10	mg/kg		<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg		<10	<10	<10	<10	<10
Potassium	7440-09-7	10	mg/kg		<10	<10	<10	<10	<10
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		6	8	<5	7	5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		15	33	7	23	16
Copper	7440-50-8	5	mg/kg		7	<5	<5	<5	7
Lead	7439-92-1	5	mg/kg		33	6	<5	<5	28
Nickel	7440-02-0	2	mg/kg		4	2	<2	<2	4
Zinc	7440-66-6	5	mg/kg		38	<5	<5	<5	29
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB025_0.0-0.1	SB025_4.9-5.0	SB026_0.0-0.1	SB026_6.9-7.0	QC103
			Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415807-026	EP2415807-032	EP2415807-033	EP2415807-041	EP2415807-042
				Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0008**	<0.0002	<0.0002	<0.0002	**0.0009**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB025_0.0-0.1	SB025_4.9-5.0	SB026_0.0-0.1	SB026_6.9-7.0	QC103
			Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415807-026	EP2415807-032	EP2415807-033	EP2415807-041	EP2415807-042
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0008**	<0.0002	<0.0002	<0.0002	**0.0009**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0008**	<0.0002	<0.0002	<0.0002	**0.0009**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0008**	<0.0002	<0.0002	<0.0002	**0.0009**
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**100**	**96.0**	**102**	**102**	**106**
13C8-PFOA	----	0.0002	%	**106**	**99.0**	**94.0**	**96.5**	**93.5**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC302	QC502	----	----	----
				Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415807-043	EP2415807-044	--------	--------	--------
					Result	Result	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**5.38**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		<1	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		<10	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		<1	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		<1	----	----	----	----
ED038A: Acidity									
Acidity as CaCO3	----	1	mg/L		**1**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		<1	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		<1	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		<1	----	----	----	----
Magnesium	7439-95-4	1	mg/L		<1	----	----	----	----
Sodium	7440-23-5	1	mg/L		<1	----	----	----	----
Potassium	7440-09-7	1	mg/L		<1	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC302	QC502	----	----	----
				Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415807-043	EP2415807-044	--------	--------	--------
					Result	Result	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	----	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	----	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		<0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		<0.1	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ **Total Nitrogen as N**	----	0.1	mg/L		<0.1	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		<0.01	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	----	----	----	----
EK085M: Sulfide as S2-									
Sulfide as S2-	18496-25-8	0.1	mg/L		<0.1	----	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		<0.01	----	----	----	----
ø **Total Cations**	----	0.01	meq/L		<0.01	----	----	----	----
ø **Ionic Balance**	----	0.01	%		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC302	QC502	----	----	----
				Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415807-043	EP2415807-044	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L		<0.02	<0.02	----	----	----
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	0.01	µg/L		<0.01	<0.01	----	----	----
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	----	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L		<0.02	<0.02	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC302	QC502	----	----	----
				Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415807-043	EP2415807-044	--------	--------	--------
					Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	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	----	----	----
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									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC302	QC502	----	----	----
				Sampling date / time	18-Oct-2024 00:00	18-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415807-043	EP2415807-044	--------	--------	--------
					Result	Result	----	----	----
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.02	%		**98.7**	**95.5**	**----**	**----**	**----**
13C8-PFOA	----	0.02	%		**104**	**104**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Mandatory Fields		CHAIN OF CUSTODY				Page ___of___
CLIENT CODE:	SENVSR	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	CL	CoC #: (Fax/Email Only)
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0434 152 590	SAMPLER MOBILE:	0408 154 421	
OFFICE: (Nearest ALS Office)		ALS QUOTE # (Client PL-# Mine)	EP24SENVER00010	PURCHASE ORDER NO.:		
PROJECT NO./PROJECT:		P21560 MSWA Kwinana DSI		STT:	Ankerell Road	
*INVOICE TO: (Intercompany Only)		supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au			X CC Invoice to PM	BIOSECURITY
*EMAIL REPORTS TO: (Optional for Hard Copy)		paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au				Country of Origin: (Food Australia)

* STORAGE REQUIREMENTS		* TURNAROUND	
Please mark box		Please check box	
Standard Storage	X	5+ days (no surcharge)	X
Extended Storage	☐	3 day (+15%)	☐
Specify Disposal Date:		2 day (+50%)	☐
Note: Extended storage incurs a fee and must be aligned agreement.		1 day (+50%)	☐

*ANALYSIS REQUIRED

Comments:

ALS Lab Code	Sample ID	Depth	Date/Time	Matrix	Soil Suite 4 - Metals	Soil Suite 2 - OCPs/TRH/BTEX/PAH	Soil Suite 3 - PFAS	Soil Suite 4 - HHF	Soil Suite 5 - Metal Speciations	Soil Suite 6 - Nutrients	Water Suite 1 - ASS Suite	Water Suite 2 - Metals (dissolved) TRH/BTEX/PAH	Water Suite 3 - PFAS Soil	TOTAL	SUB-OUT	
1	SB027_0.0-0.1		21/10/2024	S	X	X	X	X	X	X					☐	☐
2	SB027_0.5-0.6		21/10/2024	S	X	X	X	X	X	X					☐	☐
3	SB027_1.0-1.1		21/10/2024	S										X	☐	☐
SNR	SB027_1.5-1.6		21/10/2024	S										X	☐	☐
4	SB027_1.9-2.0		21/10/2024	S										X	☐	☐
5	SB031_0.0-0.1		21/10/2024	S	X	X	X	X	X	X					☐	☐
6	SB031_0.5-0.6		21/10/2024	S	X	X	X	X	X	X					☐	☐
7	SB031_1.0-1.1		21/10/2024	S										X	☐	☐
SNR	SB031_1.5-1.6		21/10/2024	S										X	☐	☐
8	SB031_1.9-2.0		21/10/2024	S										X	☐	☐
9	SB034_0.0-0.1		21/10/2024	S	X	X	X	X	X	X					☐	☐
10	SB034_0.5-0.6		21/10/2024	S	X	X	X	X	X	X					☐	☐
11	SB034_1.0-1.1		21/10/2024	S										X	☐	☐
SNR	SB034_1.5-1.6		21/10/2024	S										X	☐	☐
12	SB034_1.9-2.0		21/10/2024	S										X	☐	☐
13	SB036_0.0-0.1		21/10/2024	S	X		X	X	X	X					☐	☐
14	SB036_0.5-0.6		21/10/2024	S	X		X	X	X	X					☐	☐
15	SB036_1.0-1.1		21/10/2024	S										X	☐	☐
16	SB036_1.9-2.0		21/10/2024	S										X	☐	☐
17	SB037_0.0-0.1		21/10/2024	S	X		X	X	X	X					☐	☐
18	SB037_0.5-0.6		21/10/2024	S	X		X	X	X	X					☐	☐
19	SB037_1.0-1.1		21/10/2024	S										X	☐	☐
20	SB037_1.9-2.0		21/10/2024	S										X	☐	☐
4	SB038_0.0-0.1		21/10/2024	S	X		X	X	X	X					☐	☐
22	SB038_0.5-0.6		21/10/2024	S	X		X	X	X	X					☐	☐
23	SB038_1.0-1.1		21/10/2024	S										X	☐	☐
24	SB038_1.9-2.0		21/10/2024	S										X	☐	☐
25	SB039_0.0-0.1		21/10/2024	S	X		X	X	X	X					☐	☐
26	SB039_0.5-0.6		21/10/2024	S	X		X	X	X	X					☐	☐
27 SNR	SB039_1.0-1.1		21/10/2024	S											☐	☐
28 SNR	SB039_1.9-2.0		21/10/2024	S											☐	☐
29	SB040_0.0-0.1		21/10/2024	S										X	☐	☐
SNR	SB040_0.25-0.35		21/10/2024	S										X	☐	☐
30	SB040_0.5-0.6		21/10/2024	S										X	☐	☐
SNR	SB040_0.75-0.85		21/10/2024	S										X	☐	☐
31	SB040_1.0-1.1		21/10/2024	S										X	☐	☐
SNR	SB040_1.25-1.35		21/10/2024	S										X	☐	☐
32 SNR	SB040_1.5-1.6		21/10/2024	S										X	☐	☐
SNR	SB040_1.75-1.85		21/10/2024	S										X	☐	☐
33	SB040_2.0-2.1		21/10/2024	S										X	☐	☐
34	QC104		21/10/2024	S	X	X	X	X	X	X					☐	☐
35	QC303		21/10/2024	S	X	X	X	X	X	X					☐	☐
36	QC503		21/10/2024	S		X	X								☐	☐
—	QC204		21/10/2024		Please forward to Eurofins										☐	☐

Environmental Division
Perth
Work Order Reference
EP2415810

Telephone : -61-8-9406 1301

1130 22/10

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2415810**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 5
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Rd		
Sampler	: CL		

Dates

Date Samples Received	: 21-Oct-2024 16:50	Issue Date	: 26-Oct-2024
Client Requested Due Date	: 04-Nov-2024	Scheduled Reporting Date	: **04-Nov-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 6	Temperature	: 12.8 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 39 / 17

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Sulfide as S2- : EK085		
QC303	- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Zinc Acetate/NaOH

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - NT-8S NH3, NO2, NO3, NOX, TKN, TN, TP	SOIL - S-02 8 Metals (incl. Digestion)
EP2415810-001	21-Oct-2024 00:00	SB027_0.0-0.1	✓	✓	✓	✓	✓	✓	✓
EP2415810-002	21-Oct-2024 00:00	SB027_0.5-0.6	✓	✓	✓	✓	✓	✓	✓
EP2415810-005	21-Oct-2024 00:00	SB031_0.0-0.1	✓	✓	✓	✓	✓	✓	✓
EP2415810-006	21-Oct-2024 00:00	SB031_0.5-0.6	✓	✓	✓	✓	✓	✓	✓
EP2415810-009	21-Oct-2024 00:00	SB034_0.0-0.1	✓	✓	✓	✓	✓	✓	✓
EP2415810-010	21-Oct-2024 00:00	SB034_0.5-0.6	✓	✓	✓	✓	✓	✓	✓
EP2415810-013	21-Oct-2024 00:00	SB036_0.0-0.1	✓	✓		✓	✓	✓	✓
EP2415810-014	21-Oct-2024 00:00	SB036_0.5-0.6	✓	✓		✓	✓	✓	✓
EP2415810-017	21-Oct-2024 00:00	SB037_0.0-0.1	✓	✓		✓	✓	✓	✓
EP2415810-018	21-Oct-2024 00:00	SB037_0.5-0.6	✓	✓		✓	✓	✓	✓
EP2415810-021	21-Oct-2024 00:00	SB038_0.0-0.1	✓	✓		✓	✓	✓	✓
EP2415810-022	21-Oct-2024 00:00	SB038_0.5-0.6	✓	✓		✓	✓	✓	✓
EP2415810-025	21-Oct-2024 00:00	SB039_0.0-0.1	✓	✓		✓	✓	✓	✓
EP2415810-026	21-Oct-2024 00:00	SB039_0.5-0.6	✓	✓		✓	✓	✓	✓
EP2415810-034	21-Oct-2024 00:00	QC104	✓	✓	✓	✓	✓	✓	✓

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-04 TRH/BTEXN
EP2415810-001	21-Oct-2024 00:00	SB027_0.0-0.1		✓	✓
EP2415810-002	21-Oct-2024 00:00	SB027_0.5-0.6		✓	✓
EP2415810-003	21-Oct-2024 00:00	SB027_1.0-1.1	✓		
EP2415810-004	21-Oct-2024 00:00	SB027_1.9-2.0	✓		
EP2415810-005	21-Oct-2024 00:00	SB031_0.0-0.1		✓	✓
EP2415810-006	21-Oct-2024 00:00	SB031_0.5-0.6		✓	✓
EP2415810-007	21-Oct-2024 00:00	SB031_1.0-1.1	✓		

			(On Hold) SOIL No analysis requested	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-04 TRH/BTEXN
EP2415810-008	21-Oct-2024 00:00	SB031_1.9-2.0	✓		
EP2415810-009	21-Oct-2024 00:00	SB034_0.0-0.1		✓	✓
EP2415810-010	21-Oct-2024 00:00	SB034_0.5-0.6		✓	✓
EP2415810-011	21-Oct-2024 00:00	SB034_1.0-1.1	✓		
EP2415810-012	21-Oct-2024 00:00	SB034_1.9-2.0	✓		
EP2415810-013	21-Oct-2024 00:00	SB036_0.0-0.1		✓	
EP2415810-014	21-Oct-2024 00:00	SB036_0.5-0.6		✓	
EP2415810-015	21-Oct-2024 00:00	SB036_1.0-1.1	✓		
EP2415810-016	21-Oct-2024 00:00	SB036_1.9-2.0	✓		
EP2415810-017	21-Oct-2024 00:00	SB037_0.0-0.1		✓	
EP2415810-018	21-Oct-2024 00:00	SB037_0.5-0.6		✓	
EP2415810-019	21-Oct-2024 00:00	SB037_1.0-1.1	✓		
EP2415810-020	21-Oct-2024 00:00	SB037_1.9-2.0	✓		
EP2415810-021	21-Oct-2024 00:00	SB038_0.0-0.1		✓	
EP2415810-022	21-Oct-2024 00:00	SB038_0.5-0.6		✓	
EP2415810-023	21-Oct-2024 00:00	SB038_1.0-1.1	✓		
EP2415810-024	21-Oct-2024 00:00	SB038_1.9-2.0	✓		
EP2415810-025	21-Oct-2024 00:00	SB039_0.0-0.1		✓	
EP2415810-026	21-Oct-2024 00:00	SB039_0.5-0.6		✓	
EP2415810-029	21-Oct-2024 00:00	SB040a_0.0-0.1	✓		
EP2415810-030	21-Oct-2024 00:00	SB040a_0.5-0.6	✓		
EP2415810-031	21-Oct-2024 00:00	SB040a_1.0-1.1	✓		
EP2415810-033	21-Oct-2024 00:00	SB040a_2.0-2.1	✓		
EP2415810-034	21-Oct-2024 00:00	QC104		✓	✓
EP2415810-037	21-Oct-2024 00:00	SB042_0.0-0.1	✓		
EP2415810-038	21-Oct-2024 00:00	SB042_0.5-0.6	✓		
EP2415810-039	21-Oct-2024 00:00	SB042_1.0-1.1	✓		
EP2415810-040	21-Oct-2024 00:00	SB042_1.9-2.0	✓		

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - ASSGW-2 Acid Sulphate Soil GW Suite - Extended	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - W-02 8 Metals	WATER - W-04 TRH/BTEXN
EP2415810-035	21-Oct-2024 00:00	QC303	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (31 analytes)	WATER - W-18 TRH(C6 - C9)/BTEXN
EP2415810-035	21-Oct-2024 00:00	QC303		✓	
EP2415810-036	21-Oct-2024 00:00	QC503		✓	✓
EP2415810-041	17-Oct-2024 00:00	QC301	✓		
EP2415810-042	17-Oct-2024 00:00	QC501	✓		

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

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

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA005-P: pH by Auto Titrator							
QC303	Clear Plastic Bottle - Natural	----	21-Oct-2024	21-Oct-2024	✓	22-Oct-2024	×

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2415810**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 5
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Rd		
Sampler	: CL		

Dates

Date Samples Received	: 21-Oct-2024 16:50	Issue Date	: 29-Oct-2024
Client Requested Due Date	: 04-Nov-2024	Scheduled Reporting Date	: **04-Nov-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 6	Temperature	: 12.8 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 39 / 21

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Sulfide as S2- : EK085		
QC303	- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Zinc Acetate/NaOH
QC301	- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Zinc Acetate/NaOH

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - NT-8S NH3, NO2, NO3, NOX, TKN, TN, TP	SOIL - S-02 8 Metals (incl. Digestion)
EP2415810-001	21-Oct-2024 00:00	SB027_0.0-0.1	✓	✓	✓	✓	✓	✓	✓
EP2415810-002	21-Oct-2024 00:00	SB027_0.5-0.6	✓	✓	✓	✓	✓	✓	✓
EP2415810-005	21-Oct-2024 00:00	SB031_0.0-0.1	✓	✓	✓	✓	✓	✓	✓
EP2415810-006	21-Oct-2024 00:00	SB031_0.5-0.6	✓	✓	✓	✓	✓	✓	✓
EP2415810-009	21-Oct-2024 00:00	SB034_0.0-0.1	✓	✓	✓	✓	✓	✓	✓
EP2415810-010	21-Oct-2024 00:00	SB034_0.5-0.6	✓	✓	✓	✓	✓	✓	✓
EP2415810-013	21-Oct-2024 00:00	SB036_0.0-0.1	✓	✓		✓	✓	✓	✓
EP2415810-014	21-Oct-2024 00:00	SB036_0.5-0.6	✓	✓		✓	✓	✓	✓
EP2415810-017	21-Oct-2024 00:00	SB037_0.0-0.1	✓	✓		✓	✓	✓	✓
EP2415810-018	21-Oct-2024 00:00	SB037_0.5-0.6	✓	✓		✓	✓	✓	✓
EP2415810-021	21-Oct-2024 00:00	SB038_0.0-0.1	✓	✓		✓	✓	✓	✓
EP2415810-022	21-Oct-2024 00:00	SB038_0.5-0.6	✓	✓		✓	✓	✓	✓
EP2415810-025	21-Oct-2024 00:00	SB039_0.0-0.1	✓	✓		✓	✓	✓	✓
EP2415810-026	21-Oct-2024 00:00	SB039_0.5-0.6	✓	✓		✓	✓	✓	✓
EP2415810-034	21-Oct-2024 00:00	QC104	✓	✓	✓	✓	✓	✓	✓
EP2415810-037	21-Oct-2024 00:00	SB042_0.0-0.1	✓	✓		✓	✓		✓
EP2415810-038	21-Oct-2024 00:00	SB042_0.5-0.6	✓	✓		✓	✓		✓

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-04 TRH/BTEXN
EP2415810-001	21-Oct-2024 00:00	SB027_0.0-0.1		✓	✓
EP2415810-002	21-Oct-2024 00:00	SB027_0.5-0.6		✓	✓
EP2415810-003	21-Oct-2024 00:00	SB027_1.0-1.1	✓		
EP2415810-004	21-Oct-2024 00:00	SB027_1.9-2.0	✓		

			(On Hold) SOIL No analysis requested	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-04 TRH/BTEXN
EP2415810-005	21-Oct-2024 00:00	SB031_0.0-0.1		✓	✓
EP2415810-006	21-Oct-2024 00:00	SB031_0.5-0.6		✓	✓
EP2415810-007	21-Oct-2024 00:00	SB031_1.0-1.1	✓		
EP2415810-008	21-Oct-2024 00:00	SB031_1.9-2.0	✓		
EP2415810-009	21-Oct-2024 00:00	SB034_0.0-0.1		✓	✓
EP2415810-010	21-Oct-2024 00:00	SB034_0.5-0.6		✓	✓
EP2415810-011	21-Oct-2024 00:00	SB034_1.0-1.1	✓		
EP2415810-012	21-Oct-2024 00:00	SB034_1.9-2.0	✓		
EP2415810-013	21-Oct-2024 00:00	SB036_0.0-0.1		✓	
EP2415810-014	21-Oct-2024 00:00	SB036_0.5-0.6		✓	
EP2415810-015	21-Oct-2024 00:00	SB036_1.0-1.1	✓		
EP2415810-016	21-Oct-2024 00:00	SB036_1.9-2.0	✓		
EP2415810-017	21-Oct-2024 00:00	SB037_0.0-0.1		✓	
EP2415810-018	21-Oct-2024 00:00	SB037_0.5-0.6		✓	
EP2415810-019	21-Oct-2024 00:00	SB037_1.0-1.1	✓		
EP2415810-020	21-Oct-2024 00:00	SB037_1.9-2.0	✓		
EP2415810-021	21-Oct-2024 00:00	SB038_0.0-0.1		✓	
EP2415810-022	21-Oct-2024 00:00	SB038_0.5-0.6		✓	
EP2415810-023	21-Oct-2024 00:00	SB038_1.0-1.1	✓		
EP2415810-024	21-Oct-2024 00:00	SB038_1.9-2.0	✓		
EP2415810-025	21-Oct-2024 00:00	SB039_0.0-0.1		✓	
EP2415810-026	21-Oct-2024 00:00	SB039_0.5-0.6		✓	
EP2415810-029	21-Oct-2024 00:00	SB040a_0.0-0.1	✓		
EP2415810-030	21-Oct-2024 00:00	SB040a_0.5-0.6	✓		
EP2415810-031	21-Oct-2024 00:00	SB040a_1.0-1.1	✓		
EP2415810-033	21-Oct-2024 00:00	SB040a_2.0-2.1	✓		
EP2415810-034	21-Oct-2024 00:00	QC104		✓	✓
EP2415810-037	21-Oct-2024 00:00	SB042_0.0-0.1		✓	
EP2415810-038	21-Oct-2024 00:00	SB042_0.5-0.6		✓	
EP2415810-039	21-Oct-2024 00:00	SB042_1.0-1.1	✓		
EP2415810-040	21-Oct-2024 00:00	SB042_1.9-2.0	✓		

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - ASSGW-2 Acid Sulphate Soil GW Suite - Extended	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - W-02 8 Metals	WATER - W-04 TRH/BTEXN
EP2415810-035	21-Oct-2024 00:00	QC303	✓	✓	✓	✓
EP2415810-041	17-Oct-2024 00:00	QC301	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (31 analytes)	WATER - W-18 TRH(C6 - C9)/BTEXN
EP2415810-035	21-Oct-2024 00:00	QC303	✓	
EP2415810-036	21-Oct-2024 00:00	QC503	✓	✓
EP2415810-041	17-Oct-2024 00:00	QC301	✓	
EP2415810-042	17-Oct-2024 00:00	QC501	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

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

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA005-P: pH by Auto Titrator							
QC301	Clear Plastic Bottle - Natural	----	17-Oct-2024	21-Oct-2024	×	22-Oct-2024	×
QC303	Clear Plastic Bottle - Natural	----	21-Oct-2024	21-Oct-2024	✓	22-Oct-2024	×
EK071G: Reactive Phosphorus as P-By Discrete Analyser							
QC301	Clear Plastic Bottle - Natural	----	19-Oct-2024	21-Oct-2024	×	22-Oct-2024	×
EK085: Sulfide as S2-							
QC301	Clear Plastic Bottle - Natural	----	18-Oct-2024	21-Oct-2024	×	22-Oct-2024	×

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

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- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2415810**	Page	: 1 of 22
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 21-Oct-2024
Site	: Anketell Rd	Issue Date	: 05-Nov-2024
Sampler	: CL	No. of samples received	: 39
Order number	: ----	No. of samples analysed	: 21

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, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005(ED093)T: Total Metals by ICP-AES	EP2415818--001	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG035T: Total Recoverable Mercury by FIMS	EP2415818--001	Anonymous	**Mercury**	7439-97-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK067G: Total Phosphorus as P by Discrete Analyser	EP2415712--002	Anonymous	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Petroleum Hydrocarbons	EP2415715--002	Anonymous	**C29 - C36 Fraction**	----	62.7 %	64.6-131%	**Recovery less than lower data quality objective**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2415871--045	Anonymous	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2415871--045	Anonymous	**Perfluoropentane sulfonic acid (PFPeS)**	2706-91-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2415871--045	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	EP2415871--045	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2415871--045	Anonymous	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG035F: Dissolved Mercury by FIMS	EP2415641--001	Anonymous	**Mercury**	7439-97-6	59.5 %	70.0-130%	**Recovery less than lower data quality objective**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	EP2415892--001	Anonymous	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	EP2415932--001	Anonymous	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA002: pH 1:5 (Soils)						
Soil Glass Jar - Unpreserved						
SB042_0.0-0.1, SB042_0.5-0.6	04-Nov-2024	28-Oct-2024	**7**	----	----	----

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
QC301	----	----	----	04-Nov-2024	17-Oct-2024	**18**
Clear Plastic Bottle - Natural						
QC303	----	----	----	04-Nov-2024	21-Oct-2024	**14**
EA015: Total Dissolved Solids dried at 180 ± 5 °C						
Clear Plastic Bottle - Natural						
QC301	----	----	----	30-Oct-2024	24-Oct-2024	**6**
ED037P: Alkalinity by PC Titrator						
Clear Plastic Bottle - Natural						
QC301	----	----	----	04-Nov-2024	31-Oct-2024	**4**
EK071G: Reactive Phosphorus as P by discrete analyser						
Clear Plastic Bottle - Natural						
QC301	----	----	----	30-Oct-2024	19-Oct-2024	**11**
Clear Plastic Bottle - Natural						
QC303	----	----	----	29-Oct-2024	23-Oct-2024	**6**
EK085M: Sulfide as S2-						
Clear Plastic Bottle - Natural						
QC301	----	----	----	31-Oct-2024	18-Oct-2024	**13**
Clear Plastic Bottle - Natural						
QC303	----	----	----	28-Oct-2024	22-Oct-2024	**6**
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC301	30-Oct-2024	24-Oct-2024	**6**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC301	30-Oct-2024	24-Oct-2024	**6**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP) - Continued						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	25	8.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	31	9.68	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	25	4.00	5.00	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	15	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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*
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
SB042_0.0-0.1,	SB042_0.5-0.6	**21-Oct-2024**	**04-Nov-2024**	28-Oct-2024	×	**04-Nov-2024**	04-Nov-2024	✓
Soil Glass Jar - Unpreserved (EA002)								
SB027_0.0-0.1,	SB027_0.5-0.6,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**28-Oct-2024**	28-Oct-2024	✓
SB031_0.0-0.1,	SB031_0.5-0.6,							
SB034_0.0-0.1,	SB034_0.5-0.6,							
SB036_0.0-0.1,	SB036_0.5-0.6,							
SB037_0.0-0.1,	SB037_0.5-0.6,							
SB038_0.0-0.1,	SB038_0.5-0.6,							
SB039_0.0-0.1,	SB039_0.5-0.6,							
QC104								
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
SB027_0.0-0.1,	SB027_0.5-0.6,	**21-Oct-2024**	**----**	----	----	**01-Nov-2024**	04-Nov-2024	✓
SB031_0.0-0.1,	SB031_0.5-0.6,							
SB034_0.0-0.1,	SB034_0.5-0.6,							
SB036_0.0-0.1,	SB036_0.5-0.6,							
SB037_0.0-0.1,	SB037_0.5-0.6,							
SB038_0.0-0.1,	SB038_0.5-0.6,							
SB039_0.0-0.1,	SB039_0.5-0.6,							
QC104,	SB042_0.0-0.1,							
SB042_0.5-0.6								

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
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved (ED040S)							
SB042_0.0-0.1, SB042_0.5-0.6	**21-Oct-2024**	**04-Nov-2024**	18-Nov-2024	✓	**04-Nov-2024**	02-Dec-2024	✓
Soil Glass Jar - Unpreserved (ED040S)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104	**21-Oct-2024**	**28-Oct-2024**	18-Nov-2024	✓	**04-Nov-2024**	25-Nov-2024	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
SB042_0.0-0.1, SB042_0.5-0.6	**21-Oct-2024**	**04-Nov-2024**	18-Nov-2024	✓	**04-Nov-2024**	02-Dec-2024	✓
Soil Glass Jar - Unpreserved (ED045G)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104	**21-Oct-2024**	**28-Oct-2024**	18-Nov-2024	✓	**28-Oct-2024**	25-Nov-2024	✓
ED093S: Soluble Major Cations							
Soil Glass Jar - Unpreserved (ED093S)							
SB042_0.0-0.1, SB042_0.5-0.6	**21-Oct-2024**	**04-Nov-2024**	19-Apr-2025	✓	**04-Nov-2024**	19-Apr-2025	✓
Soil Glass Jar - Unpreserved (ED093S)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**04-Nov-2024**	19-Apr-2025	✓

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
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104, SB042_0.0-0.1, SB042_0.5-0.6	**21-Oct-2024**	**01-Nov-2024**	19-Apr-2025	✓	**04-Nov-2024**	19-Apr-2025	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104, SB042_0.0-0.1, SB042_0.5-0.6	**21-Oct-2024**	**01-Nov-2024**	18-Nov-2024	✓	**01-Nov-2024**	18-Nov-2024	✓
EK055: Ammonia as N							
Soil Glass Jar - Unpreserved (EK055)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104	**21-Oct-2024**	**----**	----	----	**31-Oct-2024**	18-Nov-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK057G)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**28-Oct-2024**	30-Oct-2024	✓

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
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK059G)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104	**21-Oct-2024**	**28-Oct-2024**	18-Nov-2024	✓	**28-Oct-2024**	30-Oct-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Soil Glass Jar - Unpreserved (EK061G)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6	**21-Oct-2024**	**30-Oct-2024**	18-Nov-2024	✓	**01-Nov-2024**	27-Nov-2024	✓
Soil Glass Jar - Unpreserved (EK061G)							
SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104	**21-Oct-2024**	**31-Oct-2024**	18-Nov-2024	✓	**04-Nov-2024**	28-Nov-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK067G)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6	**21-Oct-2024**	**30-Oct-2024**	18-Nov-2024	✓	**01-Nov-2024**	27-Nov-2024	✓
Soil Glass Jar - Unpreserved (EK067G)							
SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104	**21-Oct-2024**	**31-Oct-2024**	18-Nov-2024	✓	**04-Nov-2024**	28-Nov-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, QC104	**21-Oct-2024**	**01-Nov-2024**	04-Nov-2024	✓	**04-Nov-2024**	11-Dec-2024	✓

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
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, QC104	**21-Oct-2024**	**01-Nov-2024**	04-Nov-2024	✓	**04-Nov-2024**	11-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, QC104	**21-Oct-2024**	**29-Oct-2024**	04-Nov-2024	✓	**31-Oct-2024**	04-Nov-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, QC104	**21-Oct-2024**	**01-Nov-2024**	04-Nov-2024	✓	**04-Nov-2024**	11-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, QC104	**21-Oct-2024**	**29-Oct-2024**	04-Nov-2024	✓	**31-Oct-2024**	04-Nov-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, QC104	**21-Oct-2024**	**29-Oct-2024**	04-Nov-2024	✓	**31-Oct-2024**	04-Nov-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104, SB042_0.0-0.1, SB042_0.5-0.6	**21-Oct-2024**	**30-Oct-2024**	19-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓

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
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
SB027_0.0-0.1,	SB027_0.5-0.6,	**21-Oct-2024**	**30-Oct-2024**	19-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓
SB031_0.0-0.1,	SB031_0.5-0.6,							
SB034_0.0-0.1,	SB034_0.5-0.6,							
SB036_0.0-0.1,	SB036_0.5-0.6,							
SB037_0.0-0.1,	SB037_0.5-0.6,							
SB038_0.0-0.1,	SB038_0.5-0.6,							
SB039_0.0-0.1,	SB039_0.5-0.6,							
QC104,	SB042_0.0-0.1,							
SB042_0.5-0.6								
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
SB027_0.0-0.1,	SB027_0.5-0.6,	**21-Oct-2024**	**30-Oct-2024**	19-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓
SB031_0.0-0.1,	SB031_0.5-0.6,							
SB034_0.0-0.1,	SB034_0.5-0.6,							
SB036_0.0-0.1,	SB036_0.5-0.6,							
SB037_0.0-0.1,	SB037_0.5-0.6,							
SB038_0.0-0.1,	SB038_0.5-0.6,							
SB039_0.0-0.1,	SB039_0.5-0.6,							
QC104,	SB042_0.0-0.1,							
SB042_0.5-0.6								
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
SB027_0.0-0.1,	SB027_0.5-0.6,	**21-Oct-2024**	**30-Oct-2024**	19-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓
SB031_0.0-0.1,	SB031_0.5-0.6,							
SB034_0.0-0.1,	SB034_0.5-0.6,							
SB036_0.0-0.1,	SB036_0.5-0.6,							
SB037_0.0-0.1,	SB037_0.5-0.6,							
SB038_0.0-0.1,	SB038_0.5-0.6,							
SB039_0.0-0.1,	SB039_0.5-0.6,							
QC104,	SB042_0.0-0.1,							
SB042_0.5-0.6								

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)							
SB027_0.0-0.1, SB027_0.5-0.6, SB031_0.0-0.1, SB031_0.5-0.6, SB034_0.0-0.1, SB034_0.5-0.6, SB036_0.0-0.1, SB036_0.5-0.6, SB037_0.0-0.1, SB037_0.5-0.6, SB038_0.0-0.1, SB038_0.5-0.6, SB039_0.0-0.1, SB039_0.5-0.6, QC104, SB042_0.0-0.1, SB042_0.5-0.6	**21-Oct-2024**	**30-Oct-2024**	19-Apr-2025	✓	**30-Oct-2024**	09-Dec-2024	✓

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
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
QC301	**17-Oct-2024**	**----**	----	----	**04-Nov-2024**	17-Oct-2024	×
Clear Plastic Bottle - Natural (EA005-P)							
QC303	**21-Oct-2024**	**----**	----	----	**04-Nov-2024**	21-Oct-2024	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
QC301	**17-Oct-2024**	**----**	----	----	**04-Nov-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Natural (EA010-P)							
QC303	**21-Oct-2024**	**----**	----	----	**04-Nov-2024**	18-Nov-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
QC301	**17-Oct-2024**	**----**	----	----	**30-Oct-2024**	24-Oct-2024	×
Clear Plastic Bottle - Natural (EA015H)							
QC303	**21-Oct-2024**	**----**	----	----	**28-Oct-2024**	28-Oct-2024	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
QC301	**17-Oct-2024**	**----**	----	----	**04-Nov-2024**	31-Oct-2024	×
Clear Plastic Bottle - Natural (ED037-P)							
QC303	**21-Oct-2024**	**----**	----	----	**04-Nov-2024**	04-Nov-2024	✓
ED038A: Acidity							
Clear Plastic Bottle - Natural (ED038)							
QC301	**17-Oct-2024**	**----**	----	----	**30-Oct-2024**	31-Oct-2024	✓
Clear Plastic Bottle - Natural (ED038)							
QC303	**21-Oct-2024**	**----**	----	----	**31-Oct-2024**	04-Nov-2024	✓

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
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) QC301	17-Oct-2024	----	----	----	30-Oct-2024	14-Nov-2024	✓
Clear Plastic Bottle - Natural (ED041G) QC303	21-Oct-2024	----	----	----	29-Oct-2024	18-Nov-2024	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) QC301	17-Oct-2024	----	----	----	30-Oct-2024	14-Nov-2024	✓
Clear Plastic Bottle - Natural (ED045G) QC303	21-Oct-2024	----	----	----	29-Oct-2024	18-Nov-2024	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Filtered; Lab-acidified (ED093F) QC301	17-Oct-2024	----	----	----	30-Oct-2024	14-Nov-2024	✓
Clear Plastic Bottle - Filtered; Lab-acidified (ED093F) QC303	21-Oct-2024	----	----	----	30-Oct-2024	18-Nov-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F) QC301	17-Oct-2024	----	----	----	30-Oct-2024	15-Apr-2025	✓
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F) QC303	21-Oct-2024	----	----	----	30-Oct-2024	19-Apr-2025	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T) QC301	17-Oct-2024	01-Nov-2024	15-Apr-2025	✓	01-Nov-2024	15-Apr-2025	✓
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T) QC303	21-Oct-2024	01-Nov-2024	19-Apr-2025	✓	01-Nov-2024	19-Apr-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F) QC301	17-Oct-2024	----	----	----	31-Oct-2024	14-Nov-2024	✓
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F) QC303	21-Oct-2024	----	----	----	31-Oct-2024	18-Nov-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) QC301	17-Oct-2024	----	----	----	29-Oct-2024	14-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) QC303	21-Oct-2024	----	----	----	28-Oct-2024	18-Nov-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC301	17-Oct-2024	----	----	----	30-Oct-2024	14-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC303	21-Oct-2024	----	----	----	28-Oct-2024	18-Nov-2024	✓

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
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) QC301	**17-Oct-2024**	**01-Nov-2024**	14-Nov-2024	✓	**01-Nov-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) QC303	**21-Oct-2024**	**01-Nov-2024**	18-Nov-2024	✓	**01-Nov-2024**	18-Nov-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) QC301	**17-Oct-2024**	**01-Nov-2024**	14-Nov-2024	✓	**01-Nov-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) QC303	**21-Oct-2024**	**01-Nov-2024**	18-Nov-2024	✓	**01-Nov-2024**	18-Nov-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) QC301	**17-Oct-2024**	**----**	----	----	**30-Oct-2024**	19-Oct-2024	×
Clear Plastic Bottle - Natural (EK071G) QC303	**21-Oct-2024**	**----**	----	----	**29-Oct-2024**	23-Oct-2024	×
EK085M: Sulfide as S2-							
Clear Plastic Bottle - Natural (EK085) QC301	**17-Oct-2024**	**----**	----	----	**31-Oct-2024**	18-Oct-2024	×
Clear Plastic Bottle - Natural (EK085) QC303	**21-Oct-2024**	**----**	----	----	**28-Oct-2024**	22-Oct-2024	×
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC301	**17-Oct-2024**	**30-Oct-2024**	24-Oct-2024	×	**01-Nov-2024**	09-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC303	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC301, QC501	**17-Oct-2024**	**30-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC303, QC503	**21-Oct-2024**	**28-Oct-2024**	04-Nov-2024	✓	**28-Oct-2024**	04-Nov-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC301	**17-Oct-2024**	**30-Oct-2024**	24-Oct-2024	×	**01-Nov-2024**	09-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC303	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC301, QC501	**17-Oct-2024**	**30-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC303, QC503	**21-Oct-2024**	**28-Oct-2024**	04-Nov-2024	✓	**28-Oct-2024**	04-Nov-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC301, QC501	**17-Oct-2024**	**30-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC303, QC503	**21-Oct-2024**	**28-Oct-2024**	04-Nov-2024	✓	**28-Oct-2024**	04-Nov-2024	✓

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)								
QC301,	QC501	**17-Oct-2024**	**31-Oct-2024**	15-Apr-2025	✓	**31-Oct-2024**	15-Apr-2025	✓
HDPE (no PTFE) (EP231X)								
QC303,	QC503	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**29-Oct-2024**	19-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
QC301,	QC501	**17-Oct-2024**	**31-Oct-2024**	15-Apr-2025	✓	**31-Oct-2024**	15-Apr-2025	✓
HDPE (no PTFE) (EP231X)								
QC303,	QC503	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**29-Oct-2024**	19-Apr-2025	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
QC301,	QC501	**17-Oct-2024**	**31-Oct-2024**	15-Apr-2025	✓	**31-Oct-2024**	15-Apr-2025	✓
HDPE (no PTFE) (EP231X)								
QC303,	QC503	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**29-Oct-2024**	19-Apr-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
QC301,	QC501	**17-Oct-2024**	**31-Oct-2024**	15-Apr-2025	✓	**31-Oct-2024**	15-Apr-2025	✓
HDPE (no PTFE) (EP231X)								
QC303,	QC503	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**29-Oct-2024**	19-Apr-2025	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
QC301,	QC501	**17-Oct-2024**	**31-Oct-2024**	15-Apr-2025	✓	**31-Oct-2024**	15-Apr-2025	✓
HDPE (no PTFE) (EP231X)								
QC303,	QC503	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**29-Oct-2024**	19-Apr-2025	✓

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)							
Buchi Ammonia	EK055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cations - soluble by ICP-AES	ED093S	4	28	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	3	18	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	27	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Buchi Ammonia	EK055	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cations - soluble by ICP-AES	ED093S	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	4	18	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Buchi Ammonia	EK055	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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	
Method Blanks (MB) - Continued							
Cations - soluble by ICP-AES	ED093S	2	28	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	18	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	2	29	6.90	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Buchi Ammonia	EK055	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	18	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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)							
Acidity as Calcium Carbonate	ED038	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	37	10.81	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	16	12.50	10.00	✓	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) - Continued							
Major Cations - Dissolved	ED093F	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	25	**8.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	31	**9.68**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	31	**12.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Acidity as Calcium Carbonate	ED038	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	6	35	**17.14**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	7	**14.29**	**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*	
Method Blanks (MB) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	25	**4.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	15	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
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 Schedule B(3).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Cations - soluble by ICP-AES	ED093S	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH3 B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO3- F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NOx-N) and nitrate (NO3-N) by calculation, Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by direct colourimetry by Discrete Analyser.
TKN as N By Discrete Analyser	EK061G	SOIL	In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.
Total Nitrogen as N (TKN + NOx) By Discrete Analyser	EK062G	SOIL	In house: Referenced to APHA 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrrogen, each determined seperately as N.

Analytical Methods	Method	Matrix	Method Descriptions
Total Phosphorus By Discrete Analyser	EK067G	SOIL	In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Acidity as Calcium Carbonate	ED038	WATER	In house: Referenced to APHA 2310 B Acidity is determined by manual titration with a standardised alkali to an end-point pH of 8.3. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Sulfide as S2-	EK085	WATER	In house: Referenced to APHA 4500-S2- D. Sulfide species present in water samples are immediately precipitated when collected in pretreated caustic/zinc acetate preserved sample containers. The sulfides are coloured using methylene blue indicator. Non-detects may be screened by comparison against a standard at half-LOR, otherwise samples are measured using UV-VIS detection at 664nm. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	SOIL	In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QUALITY CONTROL REPORT

Work Order	: **EP2415810**	Page	: 1 of 36
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 21-Oct-2024
Order number	: ----	Date Analysis Commenced	: 28-Oct-2024
C-O-C number	: ----	Issue Date	: 05-Nov-2024
Sampler	: CL		
Site	: Anketell Rd		
Quote number	: EP24SENVER0010		
No. of samples received	: 39		
No. of samples analysed	: 21		

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, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
David Viner	SENIOR LAB TECH	Perth Organics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6158698)									
EP2415810-021	SB038_0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EP2415818-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	14	32.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	8	25.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	27	9.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	1580	1600	1.1	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 6148327)									
EP2415810-018	SB037_0.5-0.6	EA002: pH Value	----	0.1	pH Unit	8.2	8.1	2.0	0% - 20%
EP2415810-001	SB027_0.0-0.1	EA002: pH Value	----	0.1	pH Unit	8.7	8.8	0.0	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 6159593)									
EP2416071-007	Anonymous	EA002: pH Value	----	0.1	pH Unit	12.0	12.1	0.0	0% - 20%
EP2415803-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.2	9.2	0.0	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6156889)									
EP2415810-001	SB027_0.0-0.1	EA055: Moisture Content	----	0.1 (1.0)*	%	3.0	3.4	14.9	No Limit
EP2415810-021	SB038_0.0-0.1	EA055: Moisture Content	----	0.1 (1.0)*	%	3.9	4.2	5.2	No Limit
ED040S: Soluble Major Anions (QC Lot: 6148329)									
EP2415810-021	SB038_0.0-0.1	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.0	No Limit
EP2415810-001	SB027_0.0-0.1	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	10	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 6159591)									
EP2416071-008	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	130	110	11.1	0% - 50%
EP2415803-001	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	40	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6148328)									
EP2415810-021	SB038_0.0-0.1	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
EP2415810-001	SB027_0.0-0.1	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6159592)									
EP2415803-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
ED093S: Soluble Major Cations (QC Lot: 6148332)									
EP2415810-021	SB038_0.0-0.1	ED093S: Calcium	7440-70-2	10	mg/kg	40	40	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	<10	<10	0.0	No Limit
EP2415810-001	SB027_0.0-0.1	ED093S: Calcium	7440-70-2	10	mg/kg	60	60	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	20	20	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	30	40	0.0	No Limit
ED093S: Soluble Major Cations (QC Lot: 6159595)									
EP2415810-037	SB042_0.0-0.1	ED093S: Calcium	7440-70-2	10	mg/kg	40	40	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	<10	<10	0.0	No Limit
EP2416071-009	Anonymous	ED093S: Calcium	7440-70-2	10	mg/kg	870	880	1.4	0% - 20%
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	1900	1870	1.7	0% - 20%
		ED093S: Potassium	7440-09-7	10	mg/kg	200	200	0.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6158699)									
EP2415818-001	Anonymous	EG035T: Mercury	7439-97-6	0.1 (12.4)*	mg/kg	404	459	12.7	0% - 20%
EP2415810-021	SB038_0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK055: Ammonia as N (QC Lot: 6157431)									
EP2415810-001	SB027_0.0-0.1	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EK055: Ammonia as N (QC Lot: 6157431) - continued									
EP2415810-018	SB037_0.5-0.6	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6148331)									
EP2415810-021	SB038_0.0-0.1	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2415810-001	SB027_0.0-0.1	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6148330)									
EP2415810-021	SB038_0.0-0.1	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.4	0.4	0.0	No Limit
EP2415810-001	SB027_0.0-0.1	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.5	0.6	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6150393)									
EP2415599-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	390	430	10.2	0% - 20%
EP2415712-014	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	120	120	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6151517)									
EP2415712-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	150	130	14.6	No Limit
EP2415810-014	SB036_0.5-0.6	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	<20	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6150394)									
EP2415599-001	Anonymous	EK067G: Total Phosphorus as P	----	2	mg/kg	202	221	9.1	0% - 20%
EP2415712-014	Anonymous	EK067G: Total Phosphorus as P	----	2	mg/kg	414	459	10.3	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6151518)									
EP2415712-001	Anonymous	EK067G: Total Phosphorus as P	----	2	mg/kg	645	565	13.1	0% - 20%
EP2415810-014	SB036_0.5-0.6	EK067G: Total Phosphorus as P	----	2	mg/kg	21	14	43.6	0% - 50%
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6151336)									
EP2415810-001	SB027_0.0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6151336) - continued									
EP2415810-001	SB027_0.0-0.1	EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP2415851-022	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6151334)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6151334) - continued									
EP2415715-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP2415810-009	SB034_0.0-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6151335)									
EP2415715-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	550	560	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	650	700	7.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2415810-009	SB034_0.0-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6151334)									
EP2415715-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP2415810-009	SB034_0.0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6151335)									
EP2415715-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	1010	1050	3.5	0% - 50%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	510	570	11.3	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2415810-009	SB034_0.0-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 6151334)									
EP2415715-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP2415810-009	SB034_0.0-0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6150595)									
EP2415807-033	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6150595) - continued									
EP2415807-033	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415810-014	SB036_0.5-0.6	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6154405)									
EP2415871-045	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	0.0054	0.0053	2.2	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	0.0060	0.0059	2.3	0% - 20%
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0373	0.0346	7.5	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0040	0.0034	17.1	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0960	0.0791	19.3	0% - 20%
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	0.0018	0.0018	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6150595)									
EP2415807-033	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2415810-014	SB036_0.5-0.6	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6150595) - continued									
EP2415810-014	SB036_0.5-0.6	EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6154405)									
EP2415871-045	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0024	0.0022	9.6	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0109	0.0112	2.6	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0019	0.0018	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0041	0.0036	11.9	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	0.002	0.002	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6150595)									
EP2415807-033	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415810-014	SB036_0.5-0.6	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6150595) - continued									
EP2415810-014	SB036_0.5-0.6	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6154405)									
EP2415871-045	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6150595)									
EP2415807-033	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415810-014	SB036_0.5-0.6	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6154405)									
EP2415871-045	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6150595)									
EP2415807-033	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2415810-014	SB036_0.5-0.6	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6154405)									
EP2415871-045	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.172	0.149	14.3	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.133	0.114	15.9	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.160	0.140	13.5	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 6160259)									
EP2415782-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.96	8.90	0.7	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6160261)									
EP2415864-005	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4720	4740	0.4	0% - 20%
EP2415782-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	679	685	0.9	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6148524)									
EP2415390-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	510	506	0.8	0% - 20%
EP2415447-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1510	1510	0.2	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6153975)									
EP2415864-006	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	874	905	3.5	0% - 20%
EP2415873-008	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	6960	7100	2.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6160260)									
EP2415864-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 6160260) - continued									
EP2415864-005	Anonymous	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	500	496	0.8	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	500	496	0.8	0% - 20%
EP2415782-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	2	4	86.4	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	21	19	6.9	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	22	24	5.4	0% - 20%
ED038A: Acidity (QC Lot: 6152738)									
EP2415758-001	Anonymous	ED038: Acidity as CaCO3	----	1	mg/L	8	6	15.5	No Limit
EP2415892-001	Anonymous	ED038: Acidity as CaCO3	----	1	mg/L	4	3	0.0	No Limit
ED038A: Acidity (QC Lot: 6155530)									
EP2415629-003	Anonymous	ED038: Acidity as CaCO3	----	1	mg/L	42	46	9.2	0% - 20%
EP2415788-001	Anonymous	ED038: Acidity as CaCO3	----	1	mg/L	8	10	16.4	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6150607)									
EP2415892-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	71	72	1.4	0% - 20%
EP2415893-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	515	518	0.6	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6153342)									
EP2415932-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	59	64	8.1	0% - 20%
EP2415932-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	88	88	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6150608)									
EP2415892-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	82	77	5.8	0% - 20%
EP2415893-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	129	128	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6153341)									
EP2415932-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	84	79	5.2	0% - 20%
EP2415932-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	97	94	2.5	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6154365)									
EP2415777-013	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	3	3	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	28	27	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	1	1	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6154364)									
EP2415777-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001 (0.0005)*	mg/L	<0.0005	<0.0005	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001 (0.005)*	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001 (0.005)*	mg/L	<0.005	<0.005	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6154364) - continued									
EP2415777-002	Anonymous	EG020A-F: Cobalt	7440-48-4	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005 (0.025) *	mg/L	<0.025	<0.025	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01 (0.05)*	mg/L	<0.05	<0.05	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01 (0.05)*	mg/L	<0.05	<0.05	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05 (0.25)*	mg/L	<0.25	<0.25	0.0	No Limit
EP2415777-013	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 6154177)									
EP2415727-042	Anonymous	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP2415860-011	Anonymous	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6154363)									
EP2415571-008	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6150621)									
EP2415892-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.11	0.11	0.0	0% - 50%
EP2415893-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.12	0.10	22.3	0% - 50%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6153372)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6153372) - continued									
EP2415932-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.10	0.10	0.0	0% - 50%
EP2415932-003	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.11	0.10	0.0	0% - 50%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6150622)									
EP2415892-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	3.86	3.84	0.6	0% - 20%
EP2415893-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	3.73	3.72	0.0	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6153371)									
EP2415932-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	2.68	2.69	0.0	0% - 20%
EP2415932-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.84	1.83	0.7	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6157924)									
EP2415540-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP2415602-008	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	<0.1	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6157925)									
EP2415864-012	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP2415815-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.01	0.01	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6150606)									
EP2415892-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.03	0.0	No Limit
EP2415893-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6153340)									
EP2415932-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.02	0.0	No Limit
EP2415932-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.02	0.0	No Limit
EK085M: Sulfide as S2- (QC Lot: 6148325)									
EP2415711-001	Anonymous	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP2415790-001	Anonymous	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EK085M: Sulfide as S2- (QC Lot: 6156766)									
EP2415810-041	QC301	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP2415979-004	Anonymous	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6148337)									
EP2415583-003	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP2415390-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6148659)									
EP2415343-008	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP2415791-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6154056)									
EP2415783-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP2415810-041	QC301	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6154061)									
EP2415787-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6148337)									
EP2415583-003	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP2415390-002	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6148659)									
EP2415343-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP2415791-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6154056)									
EP2415783-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP2415810-041	QC301	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6154061)									
EP2415787-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080: BTEXN (QC Lot: 6148659)									
EP2415343-008	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2415791-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 6148659) - continued									
EP2415791-007	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 6154056)									
EP2415783-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2415810-041	QC301	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.26	0.25	0.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.60	0.55	8.2	0% - 20%
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2415673-009	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.14	0.14	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.22	0.22	0.0	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6150196) - continued									
EP2415673-002	Anonymous	EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2415673-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2415673-009	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6150196) - continued									
EP2415673-009	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2415673-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6150196)									
EP2415673-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	1.26	1.20	4.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.86	0.80	7.2	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	1.26	1.20	4.9	0% - 20%
EP2415673-009	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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 (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6158698)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	77.39 mg/kg	106	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.93 mg/kg	72.5	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	18.67 mg/kg	99.6	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	46.13 mg/kg	106	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	58.42 mg/kg	106	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	14.48 mg/kg	99.4	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	190.4 mg/kg	97.7	70.0	130
EA002: pH 1:5 (Soils) (QCLot: 6148327)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.6	102
				----	7 pH Unit	100	98.6	102
EA002: pH 1:5 (Soils) (QCLot: 6159593)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.6	102
				----	7 pH Unit	100	98.6	102
ED040S: Soluble Major Anions (QCLot: 6148329)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	104	91.7	116
ED040S: Soluble Major Anions (QCLot: 6159591)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	106	91.7	116
ED045G: Chloride by Discrete Analyser (QCLot: 6148328)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	97.5	88.0	112
				<10	5000 mg/kg	96.9	88.0	112
ED045G: Chloride by Discrete Analyser (QCLot: 6159592)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	92.0	88.0	112
				<10	5000 mg/kg	102	88.0	112
ED093S: Soluble Major Cations (QCLot: 6148332)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	103	89.2	109
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	99.5	88.3	110
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	102	89.4	118
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	98.7	89.4	101
ED093S: Soluble Major Cations (QCLot: 6159595)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	103	89.2	109

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
ED093S: Soluble Major Cations (QCLot: 6159595) - continued								
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	104	88.3	110
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	101	89.4	118
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	98.3	89.4	101
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6158699)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.115 mg/kg	73.9	70.0	130
EK055: Ammonia as N (QCLot: 6157431)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	50 mg/kg	89.5	76.1	110
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6148331)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	107	90.6	108
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6148330)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	104	88.5	110
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6150393)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	1000 mg/kg	88.6	70.0	110
				<20	100 mg/kg	112	70.0	128
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6151517)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	1000 mg/kg	95.2	70.0	110
				<20	100 mg/kg	88.8	70.0	128
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6150394)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	440 mg/kg	96.4	70.0	110
				<2	44 mg/kg	98.7	73.9	120
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6151518)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	440 mg/kg	85.1	70.0	110
				<2	44 mg/kg	85.2	73.9	120
EP068A: Organochlorine Pesticides (OC) (QCLot: 6151336)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	72.1	46.0	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	53.0	133
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	79.8	45.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.0	46.0	122
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	47.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	76.6	40.0	118
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	77.5	47.0	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	78.2	41.0	119
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	43.0	119

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068A: Organochlorine Pesticides (OC) (QCLot: 6151336) - continued								
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	41.0	131
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	41.0	119
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	81.7	41.0	127
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	44.0	122
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	37.0	129
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	41.0	127
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	42.0	122
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	104	31.2	117
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	70.1	38.0	120
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	102	31.4	125
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	31.2	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	119	24.7	125
EP068: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6151334)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	35 mg/kg	94.3	66.0	122
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6151335)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	1666 mg/kg	88.4	70.0	111
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2937 mg/kg	77.7	71.9	109
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	477 mg/kg	69.0	63.8	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6151334)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	91.1	66.0	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6151335)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	2315 mg/kg	86.2	72.8	110
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	2594 mg/kg	74.9	67.8	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	157 mg/kg	74.5	50.3	123
EP080: BTEXN (QCLot: 6151334)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	88.8	72.0	122
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	89.5	75.0	119
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	90.2	73.0	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	90.7	74.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 6151334) - continued								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	90.6	75.0	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	92.8	64.0	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150595)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	96.9	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	91.4	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.0	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	87.7	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	94.5	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	90.5	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	96.2	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	94.6	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6154405)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	114	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	106	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	91.5	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	107	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	101	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	114	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	103	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150595)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	95.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.6	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.2	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.2	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.8	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.6	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6154405)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	98.7	71.0	135

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6154405) - continued								
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	105	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.6	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	104	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150595)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	93.3	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.1	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	106	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	109	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6154405)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	103	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	103	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	101	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150595)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	95.7	62.0	145

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150595) - continued								
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	97.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	102	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	118	54.8	124
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6154405)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	111	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	106	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	106	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	90.4	54.8	124
EP231P: PFAS Sums (QCLot: 6150595)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231P: PFAS Sums (QCLot: 6154405)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA005P: pH by PC Titrator (QCLot: 6160259)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.5	102
				----	7 pH Unit	100	98.5	102
EA010P: Conductivity by PC Titrator (QCLot: 6160261)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	98.4	92.1	105
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6148524)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	90.6	80.0	120
				<10	293 mg/L	99.3	80.0	120
				<10	2410 mg/L	102	80.0	120
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6153975)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	90.5	80.0	120
				<10	293 mg/L	110	80.0	120
				<10	2410 mg/L	106	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 6160260)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 6160260) - continued								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	109	85.1	126
				<1	200 mg/L	106	90.5	111
ED038A: Acidity (QCLot: 6152738)								
ED038: Acidity as CaCO3	----	----	mg/L	----	20.3 mg/L	103	70.0	130
				----	405.5 mg/L	91.7	70.0	130
ED038A: Acidity (QCLot: 6155530)								
ED038: Acidity as CaCO3	----	----	mg/L	----	20.3 mg/L	108	70.0	130
				----	405.5 mg/L	92.8	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6150607)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	99.4	89.9	112
				<1	500 mg/L	105	89.9	112
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6153342)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.2	89.9	112
				<1	500 mg/L	106	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 6150608)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	96.4	88.6	113
				<1	1000 mg/L	99.2	88.6	113
ED045G: Chloride by Discrete Analyser (QCLot: 6153341)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	92.0	88.6	113
				<1	1000 mg/L	102	88.6	113
ED093F: Dissolved Major Cations (QCLot: 6154365)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	106	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	109	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	98.7	84.6	108
EG020F: Dissolved Metals by ICP-MS (QCLot: 6154364)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	100	90.2	111
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	90.3	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.3	89.7	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.5	87.3	107
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.0	88.8	109

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6154364) - continued								
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.0	88.9	108
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.7	89.4	106
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.8	87.6	106
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.7	87.2	108
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	94.2	83.8	102
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	89.5	112
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	98.4	89.9	120
EG020T: Total Metals by ICP-MS (QCLot: 6154177)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	112	91.6	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	117	95.0	132
EG035F: Dissolved Mercury by FIMS (QCLot: 6154363)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.005 mg/L	97.0	85.6	120
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6150621)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	102	86.2	111
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6153372)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	99.2	86.2	111
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6150622)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	105	90.5	110
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6153371)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	106	90.5	110
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6157924)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	92.0	80.0	115
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6157925)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	92.7	70.0	110
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6150606)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	102	89.4	109
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6153340)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	98.0	89.4	109
EK085M: Sulfide as S2- (QCLot: 6148325)								
EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	0.5 mg/L	103	84.1	115
EK085M: Sulfide as S2- (QCLot: 6156766)								
EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	0.5 mg/L	92.8	84.1	115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148337)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	5676 µg/L	73.0	39.3	103

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148337) - continued								
EP071: C15 - C28 Fraction	----	100	µg/L	<100	10740 µg/L	91.8	47.2	122
EP071: C29 - C36 Fraction	----	50	µg/L	<50	3044 µg/L	88.0	42.5	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148659)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	107	73.6	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6154056)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	102	73.6	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6154061)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	5676 µg/L	68.8	39.3	103
EP071: C15 - C28 Fraction	----	100	µg/L	<100	10740 µg/L	79.8	47.2	122
EP071: C29 - C36 Fraction	----	50	µg/L	<50	3044 µg/L	75.9	42.5	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148337)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7710 µg/L	79.2	47.0	100
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	10930 µg/L	91.9	46.2	116
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1050 µg/L	88.7	24.7	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148659)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	113	73.9	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6154056)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	105	73.9	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6154061)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7710 µg/L	72.4	47.0	100
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	10930 µg/L	79.7	46.2	116
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1050 µg/L	74.2	24.7	137
EP080: BTEXN (QCLot: 6148659)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	98.3	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	103	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	104	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	106	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	105	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	104	77.0	118
EP080: BTEXN (QCLot: 6154056)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	98.7	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	103	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	103	84.4	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6154056) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	104	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	105	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	110	77.0	118
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150196)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	----	----	----	----
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	94.2	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	100	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	87.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	96.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.5	65.0	140
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	0.24 µg/L	106	70.0	135
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	92.5	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6158556)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	----	----	----	----
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	73.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	76.5	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	70.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	74.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	73.3	65.0	140
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	0.24 µg/L	82.9	70.0	135
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	69.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150196)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	96.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	96.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	107	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	111	71.0	132

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150196) - continued								
EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	0.25 µg/L	105	46.1	144
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6158556)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	73.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	73.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	72.2	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	72.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	76.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	71.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	82.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	71.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	72.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	66.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	81.0	71.0	132
EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	0.25 µg/L	83.6	46.1	144
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150196)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	93.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	120	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	118	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	100	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	97.0	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	106	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	104	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6158556)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	88.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	70.2	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	86.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	71.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	81.0	65.0	136

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6158556) - continued								
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	76.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150196)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	95.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	87.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	102	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6158556)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	75.8	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	78.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	76.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	96.5	64.2	133
EP231P: PFAS Sums (QCLot: 6150196)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 6158556)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

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	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6158698)							
EP2415818-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	116	70.0	130
		EG005T: Cadmium	7440-43-9	12.5 mg/kg	108	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	116	70.0	130
		EG005T: Copper	7440-50-8	50 mg/kg	110	70.0	130
		EG005T: Lead	7439-92-1	50 mg/kg	110	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	114	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6158698) - continued							
EP2415818-001	Anonymous	EG005T: Zinc	7440-66-6	50 mg/kg	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6148328)							
EP2415810-002	SB027_0.5-0.6	ED045G: Chloride	16887-00-6	1000 mg/kg	117	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6159592)							
EP2415810-037	SB042_0.0-0.1	ED045G: Chloride	16887-00-6	1000 mg/kg	114	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6158699)							
EP2415818-001	Anonymous	EG035T: Mercury	7439-97-6	1 mg/kg	# Not Determined	70.0	130
EK055: Ammonia as N (QCLot: 6157431)							
EP2415810-002	SB027_0.5-0.6	EK055: Ammonia as N	7664-41-7	50 mg/kg	88.6	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6148331)							
EP2415810-002	SB027_0.5-0.6	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	103	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6148330)							
EP2415810-002	SB027_0.5-0.6	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	104	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6150393)							
EP2415599-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	128	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6151517)							
EP2415712-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	102	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6150394)							
EP2415599-002	Anonymous	EK067G: Total Phosphorus as P	----	100 mg/kg	85.7	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6151518)							
EP2415712-002	Anonymous	EK067G: Total Phosphorus as P	----	100 mg/kg	# Not Determined	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 6151336)							
EP2415810-002	SB027_0.5-0.6	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	80.9	57.9	124
		EP068: Heptachlor	76-44-8	0.5 mg/kg	79.1	57.4	135
		EP068: Aldrin	309-00-2	0.5 mg/kg	80.4	59.6	125
		EP068: Dieldrin	60-57-1	0.5 mg/kg	96.1	62.2	131
		EP068: Endrin	72-20-8	0.5 mg/kg	106	55.8	138
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	86.3	50.5	145
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6151334)							
EP2415715-002	Anonymous	EP080: C6 - C9 Fraction	----	24 mg/kg	85.8	69.1	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6151335)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6151335) - continued							
EP2415715-002	Anonymous	EP071: C10 - C14 Fraction	----	1666 mg/kg	84.9	64.7	126
		EP071: C15 - C28 Fraction	----	2937 mg/kg	72.0	61.7	124
		EP071: C29 - C36 Fraction	----	477 mg/kg	# 62.7	64.6	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6151334)							
EP2415715-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	29 mg/kg	80.4	69.1	135
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6151335)							
EP2415715-002	Anonymous	EP071: >C10 - C16 Fraction	----	2315 mg/kg	82.2	64.7	126
		EP071: >C16 - C34 Fraction	----	2594 mg/kg	68.8	61.7	124
		EP071: >C34 - C40 Fraction	----	157 mg/kg	72.7	64.6	131
EP080: BTEXN (QCLot: 6151334)							
EP2415715-002	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	95.3	76.4	118
		EP080: Toluene	108-88-3	2 mg/kg	89.7	67.4	112
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150595)							
EP2415807-041	Anonymous	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	97.8	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	86.4	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	94.0	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	91.5	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	94.5	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	87.5	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	93.3	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	95.0	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6154405)							
EP2415871-045	Anonymous	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	122	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	# Not Determined	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	# Not Determined	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	# Not Determined	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	84.9	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	121	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	100	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150595)							
EP2415807-041	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	90.3	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	87.2	69.0	132

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150595) - continued							
EP2415807-041	Anonymous	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	88.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	88.0	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	88.0	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	98.8	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	87.6	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	87.6	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	92.0	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	103	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	105	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6154405)							
EP2415871-045	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	98.5	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	102	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	# Not Determined	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	110	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	79.4	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	94.7	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	112	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	101	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	96.9	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	98.1	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	110	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150595)							
EP2415807-041	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	87.2	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	88.3	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	85.9	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	90.7	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	106	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	96.4	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	110	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6154405)							
EP2415871-045	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	102	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	115	60.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6154405) - continued							
EP2415871-045	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	101	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	110	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	94.9	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	119	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	103	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150595)							
EP2415807-041	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	94.9	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	99.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	91.7	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	114	60.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6154405)							
EP2415871-045	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	106	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	109	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	103	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	74.2	60.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6150607)							
EP2415892-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	105	70.4	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6153342)							
EP2415932-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	114	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 6150608)							
EP2415892-001	Anonymous	ED045G: Chloride	16887-00-6	200 mg/L	82.7	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6153341)							
EP2415932-001	Anonymous	ED045G: Chloride	16887-00-6	200 mg/L	93.7	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6154364)							
EP2415777-003	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	116	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	104	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	97.1	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	107	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	103	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6154364) - continued							
EP2415777-003	Anonymous	EG020A-F: Lead	7439-92-1	1 mg/L	97.8	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	95.4	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	106	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	110	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6154363)							
EP2415641-001	Anonymous	EG035F: Mercury	7439-97-6	0.005 mg/L	# 59.5	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6150621)							
EP2415892-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	112	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6153372)							
EP2415932-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	100.0	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6150622)							
EP2415892-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6153371)							
EP2415932-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6157924)							
EP2415571-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	89.9	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6157925)							
EP2415819-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	97.3	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6150606)							
EP2415892-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	99.5	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6153340)							
EP2415932-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	103	70.0	130
EK085M: Sulfide as S2- (QCLot: 6148325)							
EP2415711-002	Anonymous	EK085: Sulfide as S2-	18496-25-8	1 mg/L	110	70.0	130
EK085M: Sulfide as S2- (QCLot: 6156766)							
EP2415957-039	Anonymous	EK085: Sulfide as S2-	18496-25-8	1 mg/L	107	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148337)							
EP2415618-003	Anonymous	EP071: C10 - C14 Fraction	----	5676 µg/L	50.2	44.5	122
		EP071: C15 - C28 Fraction	----	10740 µg/L	68.0	55.1	143
		EP071: C29 - C36 Fraction	----	3044 µg/L	67.6	53.6	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148659)							
EP2415783-011	Anonymous	EP080: C6 - C9 Fraction	----	240 µg/L	83.7	77.0	137

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6154056)							
EP2415783-002	Anonymous	EP080: C6 - C9 Fraction	----	240 µg/L	88.0	77.0	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6154061)							
EP2415787-001	Anonymous	EP071: C10 - C14 Fraction	----	5676 µg/L	79.4	44.5	122
		EP071: C15 - C28 Fraction	----	10740 µg/L	96.9	55.1	143
		EP071: C29 - C36 Fraction	----	3044 µg/L	92.7	53.6	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148337)							
EP2415618-003	Anonymous	EP071: >C10 - C16 Fraction	----	7710 µg/L	55.5	44.5	122
		EP071: >C16 - C34 Fraction	----	10930 µg/L	69.0	55.1	143
		EP071: >C34 - C40 Fraction	----	1050 µg/L	71.2	53.6	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148659)							
EP2415783-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	290 µg/L	80.6	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6154056)							
EP2415783-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	290 µg/L	90.3	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6154061)							
EP2415787-001	Anonymous	EP071: >C10 - C16 Fraction	----	7710 µg/L	85.1	44.5	122
		EP071: >C16 - C34 Fraction	----	10930 µg/L	97.1	55.1	143
		EP071: >C34 - C40 Fraction	----	1050 µg/L	91.1	53.6	128
EP080: BTEXN (QCLot: 6148659)							
EP2415783-011	Anonymous	EP080: Benzene	71-43-2	20 µg/L	103	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	101	73.5	126
EP080: BTEXN (QCLot: 6154056)							
EP2415783-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	102	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	99.1	73.5	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150196)							
EP2415673-005	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	86.1	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	90.9	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	83.8	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	85.4	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.9	65.0	140
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.24 µg/L	92.9	70.0	135
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	80.9	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150196)							
EP2415673-005	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	88.5	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	85.7	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	85.2	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.6	72.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150196) - continued							
EP2415673-005	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	97.3	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	87.8	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	89.8	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.0	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	90.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	83.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	95.6	71.0	132
		EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.25 µg/L	91.0	70.0	131
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6150196)							
EP2415673-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	83.4	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	91.8	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	91.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	102	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	79.7	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	87.8	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	91.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150196)							
EP2415673-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	97.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	81.9	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	97.9	70.0	130

CERTIFICATE OF ANALYSIS

Work Order	: **EP2415810**	Page	: 1 of 30
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 21-Oct-2024 16:50
Order number	: ----	Date Analysis Commenced	: 28-Oct-2024
C-O-C number	: ----	Issue Date	: 05-Nov-2024 16:33
Sampler	: CL		
Site	: Anketell Rd		
Quote number	: EP24SENVER0010		
No. of samples received	: 39		
No. of samples analysed	: 21		

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, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
David Viner	SENIOR LAB TECH	Perth Organics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG035: Poor matrix spike recovery obtained for Mercury on sample EP2415641- 001 due to possible matrix interference. Results have been confirmed by re-preparation and re-analysis.
- EP071: Poor matrix spike recovery due to sample heterogeneity.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB027_0.0-0.1	SB027_0.5-0.6	SB031_0.0-0.1	SB031_0.5-0.6	SB034_0.0-0.1
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-001	EP2415810-002	EP2415810-005	EP2415810-006	EP2415810-009
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		8.7	8.6	6.8	6.7	8.8
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		3.0	2.4	<1.0	1.5	<1.0
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		<10	<10	<10	<10	<10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		20	10	<10	<10	<10
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		60	50	<10	<10	30
Magnesium	7439-95-4	10	mg/kg		<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg		20	10	<10	<10	<10
Potassium	7440-09-7	10	mg/kg		30	20	<10	<10	<10
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		7	6	<2	<2	6
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	13
Nickel	7440-02-0	2	mg/kg		3	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg		12	<5	<5	<5	25
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		0.5	0.1	0.6	0.2	0.4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB027_0.0-0.1	SB027_0.5-0.6	SB031_0.0-0.1	SB031_0.5-0.6	SB034_0.0-0.1
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415810-001	EP2415810-002	EP2415810-005	EP2415810-006	EP2415810-009
				Result	Result	Result	Result	Result
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	**0.5**	**0.1**	**0.6**	**0.2**	**0.4**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	**850**	**340**	**500**	**100**	**290**
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	**850**	**340**	**500**	**100**	**290**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	**134**	**67**	**30**	**14**	**58**
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB027_0.0-0.1	SB027_0.5-0.6	SB031_0.0-0.1	SB031_0.5-0.6	SB034_0.0-0.1
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-001	EP2415810-002	EP2415810-005	EP2415810-006	EP2415810-009
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB027_0.0-0.1	SB027_0.5-0.6	SB031_0.0-0.1	SB031_0.5-0.6	SB034_0.0-0.1
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-001	EP2415810-002	EP2415810-005	EP2415810-006	EP2415810-009
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB027_0.0-0.1	SB027_0.5-0.6	SB031_0.0-0.1	SB031_0.5-0.6	SB034_0.0-0.1
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-001	EP2415810-002	EP2415810-005	EP2415810-006	EP2415810-009
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB027_0.0-0.1	SB027_0.5-0.6	SB031_0.0-0.1	SB031_0.5-0.6	SB034_0.0-0.1
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-001	EP2415810-002	EP2415810-005	EP2415810-006	EP2415810-009
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**102**	**91.8**	**90.8**	**85.0**	**87.4**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**104**	**112**	**91.8**	**83.6**	**79.6**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**98.5**	**93.0**	**93.7**	**92.7**	**89.7**
Toluene-D8	2037-26-5	0.2	%		**90.8**	**84.6**	**86.6**	**85.1**	**81.9**
4-Bromofluorobenzene	460-00-4	0.2	%		**93.8**	**84.9**	**82.8**	**83.4**	**80.0**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**133**	**106**	**93.5**	**94.0**	**94.0**
13C8-PFOA	----	0.0002	%		**89.0**	**92.0**	**96.0**	**88.0**	**96.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB034_0.5-0.6	SB036_0.0-0.1	SB036_0.5-0.6	SB037_0.0-0.1	SB037_0.5-0.6
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-010	EP2415810-013	EP2415810-014	EP2415810-017	EP2415810-018
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**9.0**	**8.5**	**8.2**	**8.6**	**8.2**
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**3.7**	**4.0**	**2.3**	**12.7**	**20.6**
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		<10	<10	<10	<10	<10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		<10	<10	<10	<10	<10
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		**60**	**10**	<10	**40**	**20**
Magnesium	7439-95-4	10	mg/kg		<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg		<10	<10	<10	<10	<10
Potassium	7440-09-7	10	mg/kg		<10	<10	<10	<10	<10
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		<2	**7**	**8**	**3**	**3**
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg		<5	**6**	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		**0.3**	**0.3**	**0.2**	**0.2**	**0.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB034_0.5-0.6	SB036_0.0-0.1	SB036_0.5-0.6	SB037_0.0-0.1	SB037_0.5-0.6
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-010	EP2415810-013	EP2415810-014	EP2415810-017	EP2415810-018
					Result	Result	Result	Result	Result
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		**0.3**	**0.3**	**0.2**	**0.2**	**0.3**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		**130**	**160**	<20	**320**	**80**
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		**130**	**160**	<20	**320**	**80**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		**17**	**33**	**21**	**30**	**16**
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB034_0.5-0.6	SB036_0.0-0.1	SB036_0.5-0.6	SB037_0.0-0.1	SB037_0.5-0.6
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-010	EP2415810-013	EP2415810-014	EP2415810-017	EP2415810-018
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB034_0.5-0.6	SB036_0.0-0.1	SB036_0.5-0.6	SB037_0.0-0.1	SB037_0.5-0.6
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-010	EP2415810-013	EP2415810-014	EP2415810-017	EP2415810-018
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB034_0.5-0.6	SB036_0.0-0.1	SB036_0.5-0.6	SB037_0.0-0.1	SB037_0.5-0.6
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-010	EP2415810-013	EP2415810-014	EP2415810-017	EP2415810-018
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB034_0.5-0.6	SB036_0.0-0.1	SB036_0.5-0.6	SB037_0.0-0.1	SB037_0.5-0.6
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-010	EP2415810-013	EP2415810-014	EP2415810-017	EP2415810-018
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**93.4**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**77.2**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**82.5**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**76.5**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**72.3**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**92.5**	**96.0**	**104**	**92.0**	**109**
13C8-PFOA	----	0.0002	%		**92.0**	**90.5**	**94.0**	**94.0**	**94.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB038_0.0-0.1	SB038_0.5-0.6	SB039_0.0-0.1	SB039_0.5-0.6	QC104
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415810-021	EP2415810-022	EP2415810-025	EP2415810-026	EP2415810-034
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	8.8	8.3	9.2	9.2	9.0
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	3.9	3.0	3.3	4.4	1.7
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	<10	50	<10
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	<10	<10	<10	<10	<10
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	40	10	30	60	30
Magnesium	7439-95-4	10	mg/kg	<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg	<10	<10	<10	20	<10
Potassium	7440-09-7	10	mg/kg	<10	<10	<10	<10	<10
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	4	10	5	9	6
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	11
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	29
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	0.4	0.3	0.2	1.1	0.4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB038_0.0-0.1	SB038_0.5-0.6	SB039_0.0-0.1	SB039_0.5-0.6	QC104
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415810-021	EP2415810-022	EP2415810-025	EP2415810-026	EP2415810-034
				Result	Result	Result	Result	Result
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	**0.4**	**0.4**	**0.2**	**1.1**	**0.4**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	**230**	**30**	**130**	**250**	**330**
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	**230**	**30**	**130**	**250**	**330**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	**39**	**25**	**40**	**110**	**82**
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	----	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg	----	----	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	----	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB038_0.0-0.1	SB038_0.5-0.6	SB039_0.0-0.1	SB039_0.5-0.6	QC104
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-021	EP2415810-022	EP2415810-025	EP2415810-026	EP2415810-034
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	----	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	----	----	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	----	----	<0.05
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	----	----	<10
C10 - C14 Fraction	----	50	mg/kg		----	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		----	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		----	----	----	----	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	----	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	----	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		----	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	----	----	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	----	----	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	----	----	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	----	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB038_0.0-0.1	SB038_0.5-0.6	SB039_0.0-0.1	SB039_0.5-0.6	QC104
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415810-021	EP2415810-022	EP2415810-025	EP2415810-026	EP2415810-034
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	----	----	----	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	----	----	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	----	----	----	----	<1
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB038_0.0-0.1	SB038_0.5-0.6	SB039_0.0-0.1	SB039_0.5-0.6	QC104
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415810-021	EP2415810-022	EP2415810-025	EP2415810-026	EP2415810-034
				Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB038_0.0-0.1	SB038_0.5-0.6	SB039_0.0-0.1	SB039_0.5-0.6	QC104
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415810-021	EP2415810-022	EP2415810-025	EP2415810-026	EP2415810-034
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	----	**94.9**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	----	**84.6**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	----	**100**
Toluene-D8	2037-26-5	0.2	%		----	----	----	----	**85.6**
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	----	**83.2**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**99.5**	**104**	**94.0**	**94.0**	**92.5**
13C8-PFOA	----	0.0002	%		**89.5**	**91.0**	**99.5**	**94.0**	**97.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB042_0.0-0.1	SB042_0.5-0.6	----	----	----
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2415810-037	EP2415810-038	--------	--------	--------
				Result	Result	----	----	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	**8.8**	**8.7**	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**1.5**	**1.7**	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	<10	<10	----	----	----
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	**40**	**30**	----	----	----
Magnesium	7439-95-4	10	mg/kg	<10	<10	----	----	----
Sodium	7440-23-5	10	mg/kg	<10	<10	----	----	----
Potassium	7440-09-7	10	mg/kg	<10	<10	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	**11**	**13**	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	----
Lead	7439-92-1	5	mg/kg	**10**	<5	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB042_0.0-0.1	SB042_0.5-0.6	----	----	----
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415810-037	EP2415810-038	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0002**	<0.0002	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB042_0.0-0.1	SB042_0.5-0.6	----	----	----
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2415810-037	EP2415810-038	--------	--------	--------
				Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<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	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0002**	<0.0002	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0002**	<0.0002	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0002**	<0.0002	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**104**	**97.5**	----	----	----
13C8-PFOA	----	0.0002	%	**106**	**102**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC303	QC503	QC301	QC501	----
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit		EP2415810-035	EP2415810-036	EP2415810-041	EP2415810-042	--------
					Result	Result	Result	Result	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**5.74**	----	**5.63**	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		<1	----	<1	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		<10	----	<10	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		<1	----	<1	----	----
Total Alkalinity as CaCO3	----	1	mg/L		<1	----	<1	----	----
ED038A: Acidity									
Acidity as CaCO3	----	1	mg/L		<1	----	**1**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		<1	----	<1	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		<1	----	<1	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		<1	----	<1	----	----
Magnesium	7439-95-4	1	mg/L		<1	----	<1	----	----
Sodium	7440-23-5	1	mg/L		<1	----	<1	----	----
Potassium	7440-09-7	1	mg/L		<1	----	<1	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	----	<0.01	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	<0.001	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	<0.001	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC303	QC503	QC301	QC501	----
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit	EP2415810-035	EP2415810-036	EP2415810-041	EP2415810-042	--------
				Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Copper	7440-50-8	0.001	mg/L	<0.001	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	<0.001	----	----
Manganese	7439-96-5	0.001	mg/L	<0.001	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	<0.005	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	----	<0.05	----	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	----	<0.01	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	----	<0.05	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	<0.0001	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	----	<0.01	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	<0.01	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	----	<0.1	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	<0.1	----	<0.1	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	<0.01	----	<0.01	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	----	<0.01	----	----
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	----	<0.1	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	<0.01	----	<0.01	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC303	QC503	QC301	QC501	----
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit	EP2415810-035	EP2415810-036	EP2415810-041	EP2415810-042	--------
				Result	Result	Result	Result	----
EN055: Ionic Balance - Continued								
ø Total Cations	----	0.01	meq/L	<0.01	----	<0.01	----	----
ø Ionic Balance	----	0.01	%	<0.01	----	<0.01	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	----	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	----
EP231A: Perfluoroalkyl Sulfonic Acids								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC303	QC503	QC301	QC501	----
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit	EP2415810-035	EP2415810-036	EP2415810-041	EP2415810-042	--------
				Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC303	QC503	QC301	QC501	----
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit		EP2415810-035	EP2415810-036	EP2415810-041	EP2415810-042	--------
					Result	Result	Result	Result	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<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	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
EP080S: TPH(V)/BTEX Surrogates									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC303	QC503	QC301	QC501	----
				Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit		EP2415810-035	EP2415810-036	EP2415810-041	EP2415810-042	--------
					Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	2	%		84.0	87.3	111	113	----
Toluene-D8	2037-26-5	2	%		92.2	95.7	97.5	98.0	----
4-Bromofluorobenzene	460-00-4	2	%		106	102	106	107	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		98.4	98.4	98.4	100	----
13C8-PFOA	----	0.02	%		104	111	97.9	98.1	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	53	152
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	28	152
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	132
Toluene-D8	2037-26-5	66	125
4-Bromofluorobenzene	460-00-4	60	124
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

CHAIN OF CUSTODY

Mandatory Fields

Page ___of___

CLIENT CODE	SENVER	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	CL
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0434 152 590	SAMPLER MOBILE:	0408 156 431
OFFICE (Invoiced Office)		ALS QUOTE # (Client's if blank)	EP24SENVER0010	PURCHASE ORDER NO.:	
PROJECT NO./PROJECT		P21560 MRWA Kwinana DSI		SITE:	Anketell Road

*INVOICE TO: (Client default if nil) supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au — X CC Invoice to PM

*EMAIL REPORTS TO: (default to PM if blank) paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au

BIOSECURITY

Country of Origin: (If not Australia)

*STORAGE REQUIREMENTS (Please check box) — Standard Storage: X; Extended Storage: ☐
Standard Storage time from receipt of samples: Waters - 2 weeks; Soils - 2 months
Specify Disposal Date:
Note: Extended storage incurs a fee and requires a signed agreement.

*TURNAROUND (Please check box) (Not all tests can be supported, contact Client Services for more information)
X 5+ days (no surcharge)
☐ 3 day (+15%)
☐ 2 day (+30%)
☐ 1 day (+50%)

*ANALYSIS REQUIRED (NB: ALS Quote No. and/or Analysis Suite Codes must be listed to attract quoted pricing. Where Metals are requested, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).)
Mark an X in the box below analysis to indicate the parameter listed above to be tested on that sample.

ALS Use Only Lab ID	Sample ID	Depth	Date/Time	No. Bottles	MATRIX: (Soil, Solids, Water(W), Sediment (SED), Dust (D), Products (P), Biota (B), Biosolids (SAS))	Soil Suite 1 - Metals	Soil Suite 2 - OCPs/PAHs/BTEX/TRH	Soil Suite 3 - PFAS	Soil Suite 4 - pH	Soil Suite 5 - Mayas commencement	Soil Suite A - Emilianite	Water Suite 1 - ASS only	Water Suite 2 - Major cations and anions/TRH/BTEX/VOCs/Ca	Water Suite 3 - PFAS Soil				Hold	Lab QC (additional testing req.) Dup	Lab QC (additional testing req.) MS	Additional Information (Comment on hazards, e.g., asbestos, known high contaminants)
1	SB012_0.0-0.1		23/10/024		S	X		X	X	X									☐	☐	
2	SB012_0.5-0.6		23/10/024		S	X		X	X	X									☐	☐	
3	SB012_1.0-1.1		23/10/024		S													X	☐	☐	
4	SB012_1.9-2.0		23/10/024		S													X	☐	☐	
5	SB013_0.0-0.1		23/10/024		S	X		X	X	X									☐	☐	
6	SB013_0.5-0.6		23/10/024		S	X		X	X	X									☐	☐	
7	SB013_1.0-1.1		23/10/024		S													X	☐	☐	
8	SB013_1.9-2.0		23/10/024		S													X	☐	☐	
9	SB016_0.0-0.1		23/10/024		S													X	☐	☐	
10	SB016_0.5-0.6		23/10/024		S	X		X	X	X									☐	☐	
11	SB016_1.0-1.1		23/10/024		S													X	☐	☐	
12	SB016_2.0-2.1		23/10/024		S													X	☐	☐	
13	SB016_3.0-3.1		23/10/024		S	X		X	X	X									☐	☐	
14	SB016_4.0-4.1		23/10/024		S													X	☐	☐	
15	SB016_5.0-5.1		23/10/024		S													X	☐	☐	
16	SB016_5.9-6.0		23/10/024		S													X	☐	☐	
17	SB017_0.0-0.1		23/10/024		S	X		X	X	X									☐	☐	
18	SB017_0.5-0.6		23/10/024		S													X	☐	☐	
19	SB017_1.0-1.1		23/10/024		S													X	☐	☐	
20	SB017_2.0-2.1		23/10/024		S	X		X	X	X									☐	☐	
21	SB017_3.0-3.1		23/10/024		S													X	☐	☐	
22	SB017_4.0-4.1		23/10/024		S													X	☐	☐	
23	SB017_5.0-5.1		23/10/024		S													X	☐	☐	
24	SB017_6.0-6.1		23/10/024		S													X	☐	☐	
25	SB017_6.9-7.0		23/10/024		S													X	☐	☐	
26	QC113		23/10/024		S	X		X	X	X									☐	☐	
27	QC114		23/10/024		S	X		X	X	X									☐	☐	
28	QC115		23/10/024		S	X		X	X	X									☐	☐	
29	QC305		23/10/024		S			X											☐	☐	
30	QC505		23/10/024		S	X		X											☐	☐	
ARL	QC213		23/10/024		Please forward to Eurofins														☐	☐	
ARL	QC214		23/10/024		Please forward to Eurofins														☐	☐	
ARL	QC215		23/10/024		Please forward to Eurofins														☐	☐	

Comments: WO Sticker to go here. (ALS use only)

Lab QC (additional testing req.): Dup, MS

Additional Information (Comment on hazards, e.g., asbestos, known high contaminants)

Receipt Detail (Lab Use Only): Chilling Method: ; Ice / Ice Bricks: Frozen / Chilled; Frozen; Thawed; None; Sample Temp on Receipt: °C °C °C; Security Seal Intact (Circle): Yes / *No / N/A (*Notify); Carrier Data No.: ; Courier/Post ☐ Client ☐; Packaging (Circle): Hard Esky, Hard Box, Esky, Box/Bag, Other; Count: , , ,

Relinquished by: Signature: Date/Time:
Relinquished by: Signature: Date/Time:

Received by: EG. Signature: Date/Time: 24/10 @ 845
Received by: Signature: Date/Time:

Environmental Division
Perth
Work Order Reference
EP2415903

Telephone : +61-8-9406 1301

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2415903**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 3
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: CL		

Dates

Date Samples Received	: 24-Oct-2024 08:45	Issue Date	: 29-Oct-2024
Client Requested Due Date	: 05-Nov-2024	Scheduled Reporting Date	: **05-Nov-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 8.2 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 30 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - S-02 8 Metals (incl. Digestion)
EP2415903-001	23-Oct-2024 00:00	SB012_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415903-002	23-Oct-2024 00:00	SB012_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415903-003	23-Oct-2024 00:00	SB012_1.0-1.1	✓						
EP2415903-004	23-Oct-2024 00:00	SB012_1.9-2.0	✓						
EP2415903-005	23-Oct-2024 00:00	SB013_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415903-006	23-Oct-2024 00:00	SB013_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415903-007	23-Oct-2024 00:00	SB013_1.0-1.1	✓						
EP2415903-008	23-Oct-2024 00:00	SB013_1.9-2.0	✓						
EP2415903-009	23-Oct-2024 00:00	SB016_0.0-0.1	✓						
EP2415903-010	23-Oct-2024 00:00	SB016_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415903-011	23-Oct-2024 00:00	SB016_1.0-1.1	✓						
EP2415903-012	23-Oct-2024 00:00	SB016_2.0-2.1	✓						
EP2415903-013	23-Oct-2024 00:00	SB016_3.0-3.1		✓	✓	✓	✓	✓	✓
EP2415903-014	23-Oct-2024 00:00	SB016_4.0-4.1	✓						
EP2415903-015	23-Oct-2024 00:00	SB016_5.0-5.1	✓						
EP2415903-016	23-Oct-2024 00:00	SB016_5.9-6.0	✓						
EP2415903-017	23-Oct-2024 00:00	SB017_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415903-018	23-Oct-2024 00:00	SB017_0.5-0.6	✓						
EP2415903-019	23-Oct-2024 00:00	SB017_1.0-1.1	✓						
EP2415903-020	23-Oct-2024 00:00	SB017_2.0-2.1		✓	✓	✓	✓	✓	✓
EP2415903-021	23-Oct-2024 00:00	SB017_3.0-3.1	✓						
EP2415903-022	23-Oct-2024 00:00	SB017_4.0-4.1	✓						
EP2415903-023	23-Oct-2024 00:00	SB017_5.0-5.1	✓						
EP2415903-024	23-Oct-2024 00:00	SB017_6.0-6.1	✓						
EP2415903-025	23-Oct-2024 00:00	SB017_6.9-7.0	✓						
EP2415903-026	23-Oct-2024 00:00	QC113		✓	✓	✓	✓	✓	✓
EP2415903-027	23-Oct-2024 00:00	QC114			✓	✓			
EP2415903-028	23-Oct-2024 00:00	QC115			✓	✓			

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X (EP) PFAS - Full Suite (30 analytes)
EP2415903-029	23-Oct-2024 00:00	QC305	✓
EP2415903-030	23-Oct-2024 00:00	QC505	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

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- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2415903**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 3
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: CL		

Dates

Date Samples Received	: 24-Oct-2024 08:45	Issue Date	: 01-Nov-2024
Client Requested Due Date	: 05-Nov-2024	Scheduled Reporting Date	: **05-Nov-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 8.2 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 30 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Dissolved Mercury by FIMS : EG035F		
QC305	- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Nitric Acid; Filtered
Dissolved Metals by ICP-MS - Suite A : EG020A-F		
QC305	- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Nitric Acid; Filtered

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - S-02 8 Metals (incl. Digestion)
EP2415903-001	23-Oct-2024 00:00	SB012_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415903-002	23-Oct-2024 00:00	SB012_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415903-003	23-Oct-2024 00:00	SB012_1.0-1.1	✓						
EP2415903-004	23-Oct-2024 00:00	SB012_1.9-2.0	✓						
EP2415903-005	23-Oct-2024 00:00	SB013_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415903-006	23-Oct-2024 00:00	SB013_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415903-007	23-Oct-2024 00:00	SB013_1.0-1.1	✓						
EP2415903-008	23-Oct-2024 00:00	SB013_1.9-2.0	✓						
EP2415903-009	23-Oct-2024 00:00	SB016_0.0-0.1	✓						
EP2415903-010	23-Oct-2024 00:00	SB016_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415903-011	23-Oct-2024 00:00	SB016_1.0-1.1	✓						
EP2415903-012	23-Oct-2024 00:00	SB016_2.0-2.1	✓						
EP2415903-013	23-Oct-2024 00:00	SB016_3.0-3.1		✓	✓	✓	✓	✓	✓
EP2415903-014	23-Oct-2024 00:00	SB016_4.0-4.1	✓						
EP2415903-015	23-Oct-2024 00:00	SB016_5.0-5.1	✓						
EP2415903-016	23-Oct-2024 00:00	SB016_5.9-6.0	✓						
EP2415903-017	23-Oct-2024 00:00	SB017_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415903-018	23-Oct-2024 00:00	SB017_0.5-0.6	✓						
EP2415903-019	23-Oct-2024 00:00	SB017_1.0-1.1	✓						
EP2415903-020	23-Oct-2024 00:00	SB017_2.0-2.1		✓	✓	✓	✓	✓	✓
EP2415903-021	23-Oct-2024 00:00	SB017_3.0-3.1	✓						
EP2415903-022	23-Oct-2024 00:00	SB017_4.0-4.1	✓						
EP2415903-023	23-Oct-2024 00:00	SB017_5.0-5.1	✓						
EP2415903-024	23-Oct-2024 00:00	SB017_6.0-6.1	✓						
EP2415903-025	23-Oct-2024 00:00	SB017_6.9-7.0	✓						
EP2415903-026	23-Oct-2024 00:00	QC113		✓	✓	✓	✓	✓	✓
EP2415903-027	23-Oct-2024 00:00	QC114			✓	✓			
EP2415903-028	23-Oct-2024 00:00	QC115			✓	✓			

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X (EP) PFAS - Full Suite (30 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - W-02 8 Metals	WATER - W-04 TRH/BTEXN
EP2415903-029	23-Oct-2024 00:00	QC305	✓	✓	✓	✓
EP2415903-030	23-Oct-2024 00:00	QC505	✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
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- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

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- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
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- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
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SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2415903**	Page	: 1 of 12
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024
Site	: Anketell Road	Issue Date	: 06-Nov-2024
Sampler	: CL	No. of samples received	: 30
Order number	: ----	No. of samples analysed	: 13

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.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
ED093F: Dissolved Major Cations	QC-MRG2-61632080	----	**Magnesium**	7439-95-4	112 %	88.4-110%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2415052--003	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	EP2415052--003	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
SB012_0.0-0.1,	SB012_0.5-0.6,	04-Nov-2024	30-Oct-2024	**5**	----	----	----
SB013_0.0-0.1,	SB013_0.5-0.6,						
SB016_0.5-0.6,	SB016_3.0-3.1,						
SB017_0.0-0.1,	SB017_2.0-2.1,						
QC113							

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC305	04-Nov-2024	30-Oct-2024	**5**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC305	04-Nov-2024	30-Oct-2024	**5**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
TRH - Semivolatile Fraction	EP071	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)						
Dissolved Mercury by FIMS	EG035F	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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*
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
SB012_0.0-0.1,	SB012_0.5-0.6,	**23-Oct-2024**	**04-Nov-2024**	30-Oct-2024	×	**04-Nov-2024**	04-Nov-2024	✓
SB013_0.0-0.1,	SB013_0.5-0.6,							
SB016_0.5-0.6,	SB016_3.0-3.1,							
SB017_0.0-0.1,	SB017_2.0-2.1,							
QC113								
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
QC114,	QC115	**23-Oct-2024**	**----**	----	----	**04-Nov-2024**	06-Nov-2024	✓
Soil Glass Jar - Unpreserved (EA055)								
SB012_0.0-0.1,	SB012_0.5-0.6,	**23-Oct-2024**	**----**	----	----	**04-Nov-2024**	06-Nov-2024	✓
SB013_0.0-0.1,	SB013_0.5-0.6,							
SB016_0.5-0.6,	SB016_3.0-3.1,							
SB017_0.0-0.1,	SB017_2.0-2.1,							
QC113								
ED040S : Soluble Sulfate by ICPAES								
Soil Glass Jar - Unpreserved (ED040S)								
SB012_0.0-0.1,	SB012_0.5-0.6,	**23-Oct-2024**	**04-Nov-2024**	20-Nov-2024	✓	**05-Nov-2024**	02-Dec-2024	✓
SB013_0.0-0.1,	SB013_0.5-0.6,							
SB016_0.5-0.6,	SB016_3.0-3.1,							
SB017_0.0-0.1,	SB017_2.0-2.1,							
QC113								

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
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
SB012_0.0-0.1, SB012_0.5-0.6, SB013_0.0-0.1, SB013_0.5-0.6, SB016_0.5-0.6, SB016_3.0-3.1, SB017_0.0-0.1, SB017_2.0-2.1, QC113	**23-Oct-2024**	**04-Nov-2024**	20-Nov-2024	✓	**04-Nov-2024**	02-Dec-2024	✓
ED093S: Soluble Major Cations							
Soil Glass Jar - Unpreserved (ED093S)							
SB012_0.0-0.1, SB012_0.5-0.6, SB013_0.0-0.1, SB013_0.5-0.6, SB016_0.5-0.6, SB016_3.0-3.1, SB017_0.0-0.1, SB017_2.0-2.1, QC113	**23-Oct-2024**	**04-Nov-2024**	21-Apr-2025	✓	**05-Nov-2024**	21-Apr-2025	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
SB012_0.0-0.1, SB012_0.5-0.6, SB013_0.0-0.1, SB013_0.5-0.6, SB016_0.5-0.6, SB016_3.0-3.1, SB017_0.0-0.1, SB017_2.0-2.1, QC113	**23-Oct-2024**	**04-Nov-2024**	21-Apr-2025	✓	**05-Nov-2024**	21-Apr-2025	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
SB012_0.0-0.1, SB012_0.5-0.6, SB013_0.0-0.1, SB013_0.5-0.6, SB016_0.5-0.6, SB016_3.0-3.1, SB017_0.0-0.1, SB017_2.0-2.1, QC113	**23-Oct-2024**	**04-Nov-2024**	20-Nov-2024	✓	**04-Nov-2024**	20-Nov-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
SB012_0.0-0.1, SB012_0.5-0.6, SB013_0.0-0.1, SB013_0.5-0.6, SB016_0.5-0.6, SB016_3.0-3.1, SB017_0.0-0.1, SB017_2.0-2.1, QC113, QC114	**23-Oct-2024**	**30-Oct-2024**	21-Apr-2025	✓	**31-Oct-2024**	09-Dec-2024	✓
HDPE Soil Jar (EP231X)							
QC115	**23-Oct-2024**	**31-Oct-2024**	21-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓

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
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
SB012_0.0-0.1, SB012_0.5-0.6, SB013_0.0-0.1, SB013_0.5-0.6, SB016_0.5-0.6, SB016_3.0-3.1, SB017_0.0-0.1, SB017_2.0-2.1, QC113, QC114	**23-Oct-2024**	**30-Oct-2024**	21-Apr-2025	✓	**31-Oct-2024**	09-Dec-2024	✓
HDPE Soil Jar (EP231X)							
QC115	**23-Oct-2024**	**31-Oct-2024**	21-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
SB012_0.0-0.1, SB012_0.5-0.6, SB013_0.0-0.1, SB013_0.5-0.6, SB016_0.5-0.6, SB016_3.0-3.1, SB017_0.0-0.1, SB017_2.0-2.1, QC113, QC114	**23-Oct-2024**	**30-Oct-2024**	21-Apr-2025	✓	**31-Oct-2024**	09-Dec-2024	✓
HDPE Soil Jar (EP231X)							
QC115	**23-Oct-2024**	**31-Oct-2024**	21-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
SB012_0.0-0.1, SB012_0.5-0.6, SB013_0.0-0.1, SB013_0.5-0.6, SB016_0.5-0.6, SB016_3.0-3.1, SB017_0.0-0.1, SB017_2.0-2.1, QC113, QC114	**23-Oct-2024**	**30-Oct-2024**	21-Apr-2025	✓	**31-Oct-2024**	09-Dec-2024	✓
HDPE Soil Jar (EP231X)							
QC115	**23-Oct-2024**	**31-Oct-2024**	21-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
SB012_0.0-0.1, SB012_0.5-0.6, SB013_0.0-0.1, SB013_0.5-0.6, SB016_0.5-0.6, SB016_3.0-3.1, SB017_0.0-0.1, SB017_2.0-2.1, QC113, QC114	**23-Oct-2024**	**30-Oct-2024**	21-Apr-2025	✓	**31-Oct-2024**	09-Dec-2024	✓
HDPE Soil Jar (EP231X)							
QC115	**23-Oct-2024**	**31-Oct-2024**	21-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓

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
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
QC305	**23-Oct-2024**	**----**	----	**----**	**05-Nov-2024**	06-Nov-2024	✓

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
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
QC305	**23-Oct-2024**	**----**	----	**----**	**05-Nov-2024**	20-Nov-2024	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
QC305	**23-Oct-2024**	**----**	----	**----**	**05-Nov-2024**	20-Nov-2024	✓
ED093F: Dissolved Major Cations							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (ED093F)							
QC305	**23-Oct-2024**	**----**	----	**----**	**04-Nov-2024**	20-Nov-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG020A-F)							
QC305	**23-Oct-2024**	**----**	----	**----**	**04-Nov-2024**	21-Apr-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F)							
QC305	**23-Oct-2024**	**----**	----	**----**	**04-Nov-2024**	20-Nov-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC305	**23-Oct-2024**	**04-Nov-2024**	30-Oct-2024	×	**04-Nov-2024**	14-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC305	**23-Oct-2024**	**04-Nov-2024**	06-Nov-2024	✓	**05-Nov-2024**	06-Nov-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC305	**23-Oct-2024**	**04-Nov-2024**	30-Oct-2024	×	**04-Nov-2024**	14-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC305	**23-Oct-2024**	**04-Nov-2024**	06-Nov-2024	✓	**05-Nov-2024**	06-Nov-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC305	**23-Oct-2024**	**04-Nov-2024**	06-Nov-2024	✓	**05-Nov-2024**	06-Nov-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC305, QC505	**23-Oct-2024**	**29-Oct-2024**	21-Apr-2025	✓	**29-Oct-2024**	21-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
QC305, QC505	**23-Oct-2024**	**29-Oct-2024**	21-Apr-2025	✓	**29-Oct-2024**	21-Apr-2025	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
QC305, QC505	**23-Oct-2024**	**29-Oct-2024**	21-Apr-2025	✓	**29-Oct-2024**	21-Apr-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC305, QC505	**23-Oct-2024**	**29-Oct-2024**	21-Apr-2025	✓	**29-Oct-2024**	21-Apr-2025	✓

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
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
QC305, QC505	**23-Oct-2024**	**29-Oct-2024**	21-Apr-2025	✓	**29-Oct-2024**	21-Apr-2025	✓

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)							
Cations - soluble by ICP-AES	ED093S	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Cations - soluble by ICP-AES	ED093S	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Cations - soluble by ICP-AES	ED093S	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**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)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	1	**100.00**	**10.00**	✓	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) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
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 Schedule B(3).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Cations - soluble by ICP-AES	ED093S	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QUALITY CONTROL REPORT

Work Order	: **EP2415903**	Page	: 1 of 21
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024
Order number	: ----	Date Analysis Commenced	: 29-Oct-2024
C-O-C number	: ----	Issue Date	: 06-Nov-2024
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 30		
No. of samples analysed	: 13		

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, unless the sampling was conducted by ALS. 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*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6160037)									
EP2415925-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	11	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EP2415951-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	130	134	2.8	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	33	30	10.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	23	21	7.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	19	8.8	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 6152510)									
EP2415755-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.6	8.6	0.0	0% - 20%
EP2415903-002	SB012_0.5-0.6	EA002: pH Value	----	0.1	pH Unit	7.3	7.2	1.4	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6160063)									
EP2415903-001	SB012_0.0-0.1	EA055: Moisture Content	----	0.1 (1.0)*	%	2.9	2.8	0.0	No Limit
EP2415903-028	QC115	EA055: Moisture Content	----	0.1	%	2.9	2.9	0.0	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED040S: Soluble Major Anions (QC Lot: 6152514)									
EP2415903-002	SB012_0.5-0.6	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6152513)									
EP2415903-002	SB012_0.5-0.6	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
ED093S: Soluble Major Cations (QC Lot: 6152515)									
EP2415903-002	SB012_0.5-0.6	ED093S: Calcium	7440-70-2	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	<10	<10	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6160038)									
EP2415925-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2415951-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6154443)									
EP2415916-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415916-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6156047)									
EP2415903-028	QC115	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6156047) - continued									
EP2415957-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6154443)									
EP2415916-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2415916-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6156047)									
EP2415903-028	QC115	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6156047) - continued									
EP2415903-028	QC115	EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2415957-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6154443)									
EP2415916-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415916-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6154443) - continued									
EP2415916-001	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6156047)									
EP2415903-028	QC115	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415957-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6154443)									
EP2415916-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6154443) - continued									
EP2415916-003	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415916-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6156047)									
EP2415903-028	QC115	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415957-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6154443)									
EP2415916-003	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2415916-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6156047)									
EP2415903-028	QC115	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231P: PFAS Sums (QC Lot: 6156047) - continued									
EP2415903-028	QC115	EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2415957-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 6163995)									
EP2415823-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	64	65	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	64	65	0.0	0% - 20%
EP2416207-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	19	19	0.0	0% - 50%
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	138	147	6.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	157	166	5.4	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6166593)									
EP2415903-029	QC305	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6166594)									
EP2415903-029	QC305	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 6163209)									
EP2415903-029	QC305	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6163208)									
EP2415903-029	QC305	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6163210)									
EP2415903-029	QC305	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6163301)									
EP2415903-029	QC305	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6163301) - continued									
EP2416162-075	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6163301)									
EP2415903-029	QC305	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP2416162-075	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6163301)									
EP2415903-029	QC305	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2416162-075	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6152749)									
EP2415052-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.55	0.54	0.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	2.00	1.69	16.9	0% - 20%
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.08	0.08	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.09	0.09	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.04	0.03	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2415704-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6152749)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6152749) - continued									
EP2415052-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.04	0.03	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.15	0.14	7.4	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	0.09	0.08	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2415704-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6152749)									
EP2415052-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2415704-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6152749) - continued									
EP2415704-001	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6152749)									
EP2415052-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.20	0.16	17.8	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2415704-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6152749)									
EP2415052-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	3.35	2.95	12.7	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	2.55	2.23	13.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	3.11	2.73	13.0	0% - 20%
EP2415704-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.02	0.02	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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 (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6160037)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	77.39 mg/kg	103	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.93 mg/kg	72.5	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	18.67 mg/kg	99.9	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	46.13 mg/kg	105	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	58.42 mg/kg	98.5	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	14.48 mg/kg	97.7	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	190.4 mg/kg	94.2	70.0	130
EA002: pH 1:5 (Soils) (QCLot: 6152510)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.6	102
				----	7 pH Unit	100	98.6	102
ED040S: Soluble Major Anions (QCLot: 6152514)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	105	91.7	116
ED045G: Chloride by Discrete Analyser (QCLot: 6152513)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	98.1	88.0	112
				<10	5000 mg/kg	102	88.0	112
ED093S: Soluble Major Cations (QCLot: 6152515)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	103	89.2	109
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	103	88.3	110
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	102	89.4	118
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	98.9	89.4	101
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6160038)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.115 mg/kg	74.3	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6154443)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	97.4	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	98.2	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.8	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	89.8	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	96.6	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	96.1	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	89.6	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6154443) - continued								
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	105	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156047)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	104	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	96.8	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.6	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	95.8	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	101	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	106	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	108	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	105	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6154443)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	96.8	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.2	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.2	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.6	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156047)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	99.7	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.2	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.6	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.0	133

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6154443)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	89.4	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	91.0	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.2	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	99.7	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.2	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6156047)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.8	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	94.4	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6154443)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	103	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	103	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	87.9	54.8	124
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6156047)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	103	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	96.2	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	101	54.8	124
EP231P: PFAS Sums (QCLot: 6154443)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 6154443) - continued								
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231P: PFAS Sums (QCLot: 6156047)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED037P: Alkalinity by PC Titrator (QCLot: 6163995)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	109	85.1	126
				<1	200 mg/L	104	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6166593)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	89.9	112
				<1	500 mg/L	106	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 6166594)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	97.1	88.6	113
				<1	1000 mg/L	105	88.6	113
ED093F: Dissolved Major Cations (QCLot: 6163209)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	114	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	# 112	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	106	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	105	84.6	108
EG020F: Dissolved Metals by ICP-MS (QCLot: 6163208)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	90.3	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	89.7	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	87.3	107
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.8	88.9	108
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	89.4	106
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.9	87.2	108
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	104	89.5	112

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 6163210)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.005 mg/L	105	85.6	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6163301)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	90.5	73.6	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6163483)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	5676 µg/L	64.8	39.3	103
EP071: C15 - C28 Fraction	----	100	µg/L	<100	10740 µg/L	84.0	47.2	122
EP071: C29 - C36 Fraction	----	50	µg/L	<50	3044 µg/L	81.8	42.5	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6163301)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	91.0	73.9	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6163483)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7710 µg/L	70.3	47.0	100
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	10930 µg/L	84.5	46.2	116
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1050 µg/L	81.8	24.7	137
EP080: BTEXN (QCLot: 6163301)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	87.9	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	98.1	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	88.8	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	86.3	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	89.7	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	112	77.0	118
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6152749)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	----	----	----	----
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	87.2	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	96.7	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	93.5	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	89.0	65.0	140
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	0.24 µg/L	100	70.0	135
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	93.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6152749)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	84.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	83.8	72.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6152749) - continued								
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	82.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	86.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	90.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.8	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	83.0	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	88.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	89.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	105	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6152749)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	82.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	88.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	82.1	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	96.5	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	87.4	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	93.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	90.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6152749)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	92.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	95.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	88.3	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	92.9	64.2	133
EP231P: PFAS Sums (QCLot: 6152749)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

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**

Matrix Spike (MS) Report		
Spike	SpikeRecovery(%)	Acceptable Limits (%)

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6160037)							
EP2415951-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	90.0	70.0	130
		EG005T: Cadmium	7440-43-9	12.5 mg/kg	86.4	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	88.4	70.0	130
		EG005T: Copper	7440-50-8	50 mg/kg	96.5	70.0	130
		EG005T: Lead	7439-92-1	50 mg/kg	88.3	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	77.3	70.0	130
		EG005T: Zinc	7440-66-6	50 mg/kg	76.6	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6152513)							
EP2415903-002	SB012_0.5-0.6	ED045G: Chloride	16887-00-6	1000 mg/kg	116	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6160038)							
EP2415951-001	Anonymous	EG035T: Mercury	7439-97-6	1 mg/kg	76.0	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6154443)							
EP2415916-004	Anonymous	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	97.8	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	98.7	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	96.2	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	89.8	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	101	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	96.1	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	99.6	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	106	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156047)							
EP2415925-001	Anonymous	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	82.9	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	100	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	81.6	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	94.7	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	101	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	88.9	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	94.6	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	95.4	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6154443)							
EP2415916-004	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	94.1	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	94.8	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	110	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	96.0	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	106	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	98.8	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	97.6	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	105	64.0	136

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6154443) - continued							
EP2415916-004	Anonymous	EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	107	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	114	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	103	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156047)							
EP2415925-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	105	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	108	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	96.0	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	90.1	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	98.6	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	105	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	96.0	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	108	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	108	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	107	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	103	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6154443)							
EP2415916-004	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	92.0	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	96.0	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	101	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	120	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	98.9	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	105	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	103	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6156047)							
EP2415925-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	99.6	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	88.0	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	97.1	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	120	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	100	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	104	63.0	144

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6156047) - continued							
EP2415925-001	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	111	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6154443)							
EP2415916-004	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	108	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	104	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	109	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	90.4	60.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6156047)							
EP2415925-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	102	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	101	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	95.8	60.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6166593)							
EP2415903-029	QC305	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	116	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 6166594)							
EP2415903-029	QC305	ED045G: Chloride	16887-00-6	200 mg/L	125	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6163301)							
EP2416102-001	Anonymous	EP080: C6 - C9 Fraction	----	240 µg/L	90.4	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6163301)							
EP2416102-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	290 µg/L	82.7	77.0	137
EP080: BTEXN (QCLot: 6163301)							
EP2416102-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	95.0	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	111	73.5	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6152749)							
EP2415052-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	90.7	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	104	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	# Not Determined	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.24 µg/L	116	70.0	135
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	99.2	53.0	129

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6152749)							
EP2415052-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	88.7	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	102	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	89.6	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	84.2	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	93.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	98.4	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	96.4	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	93.0	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	89.8	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	98.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	118	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6152749)							
EP2415052-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	94.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	103	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	96.4	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	102	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	99.1	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	98.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	96.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6152749)							
EP2415052-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	96.4	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	108	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	89.1	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	91.9	70.0	130

CERTIFICATE OF ANALYSIS

Work Order	: **EP2415903**	Page	: 1 of 16
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024 08:45
Order number	: ----	Date Analysis Commenced	: 29-Oct-2024
C-O-C number	: ----	Issue Date	: 06-Nov-2024 13:46
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 30		
No. of samples analysed	: 13		

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, unless the sampling was conducted by ALS. 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*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- ED093: LCS recovery for Mg falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB012_0.0-0.1	SB012_0.5-0.6	SB013_0.0-0.1	SB013_0.5-0.6	SB016_0.5-0.6
				Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415903-001	EP2415903-002	EP2415903-005	EP2415903-006	EP2415903-010
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**7.2**	**7.3**	**9.2**	**9.0**	**8.8**
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**2.9**	**2.5**	**3.0**	**2.2**	**3.9**
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		<10	<10	<10	<10	<10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		<10	<10	<10	<10	<10
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		<10	<10	**40**	**40**	**60**
Magnesium	7439-95-4	10	mg/kg		<10	<10	<10	<10	<10
Sodium	7440-23-5	10	mg/kg		**10**	<10	<10	<10	**10**
Potassium	7440-09-7	10	mg/kg		<10	<10	<10	<10	<10
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**7**	**10**	**5**	**6**	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**8**	**10**	**10**	**10**	**13**
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		**2**	<2	<2	<2	**4**
Zinc	7440-66-6	5	mg/kg		<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB012_0.0-0.1	SB012_0.5-0.6	SB013_0.0-0.1	SB013_0.5-0.6	SB016_0.5-0.6
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415903-001	EP2415903-002	EP2415903-005	EP2415903-006	EP2415903-010
				Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB012_0.0-0.1	SB012_0.5-0.6	SB013_0.0-0.1	SB013_0.5-0.6	SB016_0.5-0.6
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415903-001	EP2415903-002	EP2415903-005	EP2415903-006	EP2415903-010
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**87.5**	**92.5**	**94.5**	**102**	**90.5**
13C8-PFOA	----	0.0002	%	**89.5**	**92.0**	**104**	**104**	**86.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB016_3.0-3.1	SB017_0.0-0.1	SB017_2.0-2.1	QC113	QC114
				Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415903-013	EP2415903-017	EP2415903-020	EP2415903-026	EP2415903-027
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		9.4	8.6	9.4	9.4	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		----	----	----	----	2.3
Moisture Content	----	1.0	%		5.1	2.5	4.2	9.9	----
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		<10	<10	<10	<10	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		<10	<10	<10	20	----
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		40	60	40	40	----
Magnesium	7439-95-4	10	mg/kg		<10	<10	<10	<10	----
Sodium	7440-23-5	10	mg/kg		<10	10	<10	20	----
Potassium	7440-09-7	10	mg/kg		<10	<10	<10	<10	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		6	6	<5	<5	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg		17	38	14	8	----
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	----
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	----
Nickel	7440-02-0	2	mg/kg		<2	3	<2	<2	----
Zinc	7440-66-6	5	mg/kg		<5	<5	<5	<5	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB016_3.0-3.1	SB017_0.0-0.1	SB017_2.0-2.1	QC113	QC114
				Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415903-013	EP2415903-017	EP2415903-020	EP2415903-026	EP2415903-027
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB016_3.0-3.1	SB017_0.0-0.1	SB017_2.0-2.1	QC113	QC114
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415903-013	EP2415903-017	EP2415903-020	EP2415903-026	EP2415903-027
				Result	Result	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	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**108**	**93.5**	**98.0**	**110**	**91.5**
13C8-PFOA	----	0.0002	%	**106**	**91.5**	**96.0**	**102**	**100**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC115	----	----	----	----
				Sampling date / time	23-Oct-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2415903-028	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**2.9**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	----	----	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC115	----	----	----	----
				Sampling date / time	23-Oct-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2415903-028	--------	--------	--------	--------
					Result	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<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	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	----	----	----	----
EP231S: PFAS Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC115	----	----	----	----
				Sampling date / time	23-Oct-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2415903-028	--------	--------	--------	--------
					Result	----	----	----	----
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.0002	%		**104**	**----**	**----**	**----**	**----**
13C8-PFOA	----	0.0002	%		**104**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC305	QC505	----	----	----
				Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415903-029	EP2415903-030	--------	--------	--------
					Result	Result	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		<1	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		<1	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		<1	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		<1	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		<1	----	----	----	----
Magnesium	7439-95-4	1	mg/L		<1	----	----	----	----
Sodium	7440-23-5	1	mg/L		<1	----	----	----	----
Potassium	7440-09-7	1	mg/L		<1	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		<0.01	----	----	----	----
ø Total Cations	----	0.01	meq/L		<0.01	----	----	----	----
ø Ionic Balance	----	0.01	%		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC305	QC505	----	----	----
				Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415903-029	EP2415903-030	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC305	QC505	----	----	----
				Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415903-029	EP2415903-030	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	----	----	----
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	----	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC305	QC505	----	----	----
				Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415903-029	EP2415903-030	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----
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	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**86.3**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**102**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**95.5**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	**106**	----	----	----
13C8-PFOA	----	0.02	%		**99.5**	**99.3**	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Mandatory Fields

CHAIN OF CUSTODY

Page ___of___

CoC #: (if applicable)

CLIENT CODE:	SENVER	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	CL
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0434 152 590	SAMPLER MOBILE:	0408 156 431
OFFICE: (Invoiced Office)		ALS QUOTE # (Client PL if blank)	EP24SENVER0010	PURCHASE ORDER NO.:	
PROJECT NO./PROJECT:		P21560 MRWA Kwinana DSI		SITE:	Anketell Road
*INVOICE TO: (client default if nil)	supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au			X	CC Invoice to PM
*EMAIL REPORTS TO: (default to PM if blank)	paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au				

BIOSECURITY
Environmental Division
Perth
Work Order Reference
EP2415925

Telephone : -- 61-8-9406 1301

*** STORAGE REQUIREMENTS** Please check box. → Standard Storage time from receipt of samples: Waters - 3 weeks, Soils - 2 months

- X Standard Storage
- ☐ Extended Storage

Specify Disposal Date:

Note: Extended storage incurs a fee and requires a signed agreement.

*** TURNAROUND** Please check box. → (Not all tests can be expedited, contact Client Services for more information)

- X 5+ days (no surcharge)
- ☐ 3 day (+15%)
- ☐ 2 day (+30%)
- ☐ 1 day (+50%)

***ANALYSIS REQUIRED**

(NB. ALS Quote No. and/or Analysis Suite Codes must be listed to attract suite/quoted price)
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
Mark an X in the boxes below analysis to indicate the parameter listed above to be tested on that sample.

Comments:

ALS Use Only	Sample ID	Depth	Date/Time	No.	MATRIX: Soil/Solid(S) Water(W) Sediments (SD), Dust (D), Product (P), Biota (B), Biosolid (BS)	Soil Suite 1 - Metals	Soil Suite 2 - OCPs/TRH/BTEXN	Soil Suite 3 - PFAS	Soil Suite 4 - pH	Soil Suite 5 - Major cations/anions	Soil Suite 6 - Nutrients	Water Suite 1 - ASS suite	Water Suite 2 - Major ions/metals/TRH/BTEXN/ OCPs	Water Suite 3 - PFAS SUT			Hold	Lab QC (additional)		Additional Information (Comment on hazards, e.g. asbestos known)
1	SB003_0.0-0.1		24/10/2024		S	X	X	X	X									☐	☐	
2	SB003_0.5-0.6		24/10/2024		S	X	X	X	X									☐	☐	
3	SB003_1.0-1.1		24/10/2024		S												X	☐	☐	
4	SB003_1.9-2.0		24/10/2024		S												X	☐	☐	
5	SB004_0.0-0.1		24/10/2024		S	X	X	X	X									☐	☐	
6	SB004_0.5-0.6		24/10/2024		S	X	X	X	X									☐	☐	
7	SB004_1.0-1.1		24/10/2024		S												X	☐	☐	
8	SB004_1.9-2.0		24/10/2024		S												X	☐	☐	
9	SB005_0.0-0.1		24/10/2024		S	X	X	X	X									☐	☐	
10	SB005_0.5-0.6		24/10/2024		S	X	X	X	X									☐	☐	
11	SB005_1.0-1.1		24/10/2024		S												X	☐	☐	
12	SB005_1.9-2.0		24/10/2024		S												X	☐	☐	
13	SB015_0.0-0.1		24/10/2024		S	X	X	X	X									☐	☐	
14	SB015_0.5-0.6		24/10/2024		S	X	X	X	X									☐	☐	
15	SB015_1.0-1.1		24/10/2024		S												X	☐	☐	
16	SB015_2.0-2.1		24/10/2024		S												X	☐	☐	
17	SB015_3.0-3.1		24/10/2024		S												X	☐	☐	
18	SB015_4.0-4.1		24/10/2024		S												X	☐	☐	
19	SB015_4.9-5.0		24/10/2024		S												X	☐	☐	
20	QC306		24/10/2024		S	X														

SP 1625 24/10

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2415925**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 3
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: CL		

Dates

Date Samples Received	: 24-Oct-2024 16:25	Issue Date	: 29-Oct-2024
Client Requested Due Date	: 05-Nov-2024	Scheduled Reporting Date	: **05-Nov-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 12.0 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 21 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN
EP2415925-001	24-Oct-2024 00:00	SB003_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415925-002	24-Oct-2024 00:00	SB003_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415925-003	24-Oct-2024 00:00	SB003_1.0-1.1	✓						
EP2415925-004	24-Oct-2024 00:00	SB003_1.9-2.0	✓						
EP2415925-005	24-Oct-2024 00:00	SB004_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415925-006	24-Oct-2024 00:00	SB004_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415925-007	24-Oct-2024 00:00	SB004_1.0-1.1	✓						
EP2415925-008	24-Oct-2024 00:00	SB004_1.9-2.0	✓						
EP2415925-009	24-Oct-2024 00:00	SB005_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415925-010	24-Oct-2024 00:00	SB005_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415925-011	24-Oct-2024 00:00	SB005_1.0-1.1	✓						
EP2415925-012	24-Oct-2024 00:00	SB005_1.9-2.0	✓						
EP2415925-013	24-Oct-2024 00:00	SB015_0.0-0.1		✓	✓	✓	✓	✓	✓
EP2415925-014	24-Oct-2024 00:00	SB015_0.5-0.6		✓	✓	✓	✓	✓	✓
EP2415925-015	24-Oct-2024 00:00	SB015_1.0-1.1	✓						
EP2415925-016	24-Oct-2024 00:00	SB015_2.0-2.1	✓						
EP2415925-017	24-Oct-2024 00:00	SB015_3.0-3.1	✓						
EP2415925-018	24-Oct-2024 00:00	SB015_4.0-4.1	✓						
EP2415925-019	24-Oct-2024 00:00	SB015_4.9-5.0	✓						

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X (EP) PFAS - Full Suite (30 analytes)
EP2415925-020	24-Oct-2024 00:00	QC306	✓
EP2415925-021	24-Oct-2024 00:00	QC506	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2415925**	Page	: 1 of 9
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024
Site	: Anketell Road	Issue Date	: 05-Nov-2024
Sampler	: CL	No. of samples received	: 21
Order number	: ----	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
SB003_0.0-0.1,	SB003_0.5-0.6,	01-Nov-2024	31-Oct-2024	1	----	----	----
SB004_0.0-0.1,	SB004_0.5-0.6,						
SB005_0.0-0.1,	SB005_0.5-0.6,						
SB015_0.0-0.1,	SB015_0.5-0.6						

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**01-Nov-2024**	31-Oct-2024	×	**01-Nov-2024**	01-Nov-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**----**	----	**----**	**04-Nov-2024**	07-Nov-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							

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
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**04-Nov-2024**	22-Apr-2025	✓	**05-Nov-2024**	22-Apr-2025	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**04-Nov-2024**	21-Nov-2024	✓	**04-Nov-2024**	21-Nov-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**31-Oct-2024**	07-Nov-2024	✓	**04-Nov-2024**	10-Dec-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**30-Oct-2024**	07-Nov-2024	✓	**01-Nov-2024**	07-Nov-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
Soil Glass Jar - Unpreserved (EP071)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**31-Oct-2024**	07-Nov-2024	✓	**02-Nov-2024**	10-Dec-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**30-Oct-2024**	07-Nov-2024	✓	**01-Nov-2024**	07-Nov-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
Soil Glass Jar - Unpreserved (EP071)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**31-Oct-2024**	07-Nov-2024	✓	**02-Nov-2024**	10-Dec-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							

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
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**30-Oct-2024**	07-Nov-2024	✓	**01-Nov-2024**	07-Nov-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
SB003_0.0-0.1,	SB003_0.5-0.6,	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
SB004_0.0-0.1,	SB004_0.5-0.6,							
SB005_0.0-0.1,	SB005_0.5-0.6,							
SB015_0.0-0.1,	SB015_0.5-0.6							

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

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)								
QC306,	QC506	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**31-Oct-2024**	22-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
QC306,	QC506	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**31-Oct-2024**	22-Apr-2025	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
QC306,	QC506	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**31-Oct-2024**	22-Apr-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
QC306,	QC506	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**31-Oct-2024**	22-Apr-2025	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
QC306,	QC506	**24-Oct-2024**	**31-Oct-2024**	22-Apr-2025	✓	**31-Oct-2024**	22-Apr-2025	✓

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	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**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
Pesticides by GCMS	EP068	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**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
Pesticides by GCMS	EP068	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**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
Pesticides by GCMS	EP068	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**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	0	12	**0.00**	**10.00**	×	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 Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	12	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
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 Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QUALITY CONTROL REPORT

Work Order	: **EP2415925**	Page	: 1 of 14
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024
Order number	: ----	Date Analysis Commenced	: 30-Oct-2024
C-O-C number	: ----	Issue Date	: 05-Nov-2024
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 21		
No. of samples analysed	: 10		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6160037)									
EP2415925-002	SB003_0.5-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	11	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EP2415951-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	130	134	2.8	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	33	30	10.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	23	21	7.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	19	8.8	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 6156918)									
EP2415925-001	SB003_0.0-0.1	EA002: pH Value	----	0.1	pH Unit	8.5	8.8	2.8	0% - 20%
EP2415946-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.4	8.9	6.3	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6159655)									
EP2415687-007	Anonymous	EA055: Moisture Content	----	0.1	%	23.6	24.2	2.8	0% - 20%
EP2415925-014	SB015_0.5-0.6	EA055: Moisture Content	----	0.1 (1.0)*	%	1.7	1.8	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6160038)									
EP2415925-002	SB003_0.5-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2415951-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6154344)									
EP2415951-002	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP2415851-026	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6154344) - continued									
EP2415851-026	Anonymous	EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	0.10	0.09	14.3	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	0.10	0.09	10.5	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6154340)									
EP2415882-013	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP2415916-028	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6154342)									
EP2415727-038	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2415851-026	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6154340)									
EP2415882-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP2415916-028	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6154342)									
EP2415727-038	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2415851-026	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	140	34.9	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6154342) - continued									
EP2415851-026	Anonymous	EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 6154340)									
EP2415882-013	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP2415916-028	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6156047)									
EP2415903-028	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415957-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6156047)									
EP2415903-028	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6156047) - continued									
EP2415903-028	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2415957-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6156047)									
EP2415903-028	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415957-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6156047) - continued									
EP2415957-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6156047)									
EP2415903-028	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415957-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6156047)									
EP2415903-028	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2415957-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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 (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6160037)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	77.39 mg/kg	103	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.93 mg/kg	72.5	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	18.67 mg/kg	99.9	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	46.13 mg/kg	105	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	58.42 mg/kg	98.5	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	14.48 mg/kg	97.7	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	190.4 mg/kg	94.2	70.0	130
EA002: pH 1:5 (Soils) (QCLot: 6156918)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.6	102
				----	7 pH Unit	100	98.6	102
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6160038)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.115 mg/kg	74.3	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 6154344)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	73.5	46.0	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	53.0	133
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	45.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	78.4	46.0	122
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.2	47.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	68.7	40.0	118
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	79.5	47.0	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	41.0	119
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	43.0	119
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	41.0	131
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	41.0	119
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	41.0	127
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	44.0	122
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	37.0	129
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	41.0	127
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 6154344) - continued								
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	113	42.0	122
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	103	31.2	117
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	38.0	120
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	56.4	31.4	125
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	31.2	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	54.1	24.7	125
EP068: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068: Sum of Aldrin + Dieldrin	309-00-2/60- 57-1	0.05	mg/kg	<0.05	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6154340)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	35 mg/kg	105	66.0	122
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6154342)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	1666 mg/kg	93.1	70.0	111
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2937 mg/kg	90.9	71.9	109
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	477 mg/kg	87.1	63.8	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6154340)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	103	66.0	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6154342)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	2315 mg/kg	92.4	72.8	110
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	2594 mg/kg	90.2	67.8	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	157 mg/kg	80.7	50.3	123
EP080: BTEXN (QCLot: 6154340)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	101	72.0	122
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	102	75.0	119
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	103	73.0	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	102	74.0	122
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	101	75.0	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	93.0	64.0	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156047)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	104	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	96.8	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.6	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	95.8	67.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156047) - continued								
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	101	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	106	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	108	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	105	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156047)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	99.7	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.2	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.6	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6156047)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.8	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	94.4	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6156047)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	103	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	96.2	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	101	54.8	124
EP231P: PFAS Sums (QCLot: 6156047)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 6156047) - continued								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6158556)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	----	----	----	----
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	73.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	76.5	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	70.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	74.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	73.3	65.0	140
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	0.24 µg/L	82.9	70.0	135
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	69.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6158556)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	73.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	73.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	72.2	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	72.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	76.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	71.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	82.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	71.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	72.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	66.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	81.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6158556)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	88.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	70.2	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	86.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	71.3	62.2	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6158556) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	81.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	76.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6158556)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	75.8	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	78.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	76.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	96.5	64.2	133
EP231P: PFAS Sums (QCLot: 6158556)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

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	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6160037)							
EP2415951-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	90.0	70.0	130
		EG005T: Cadmium	7440-43-9	12.5 mg/kg	86.4	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	88.4	70.0	130
		EG005T: Copper	7440-50-8	50 mg/kg	96.5	70.0	130
		EG005T: Lead	7439-92-1	50 mg/kg	88.3	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	77.3	70.0	130
		EG005T: Zinc	7440-66-6	50 mg/kg	76.6	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6160038)							
EP2415951-001	Anonymous	EG035T: Mercury	7439-97-6	1 mg/kg	76.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 6154344)							
EP2415851-026	Anonymous	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	78.0	57.9	124
		EP068: Heptachlor	76-44-8	0.5 mg/kg	77.8	57.4	135
		EP068: Aldrin	309-00-2	0.5 mg/kg	72.0	59.6	125
		EP068: Dieldrin	60-57-1	0.5 mg/kg	88.4	62.2	131

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP068A: Organochlorine Pesticides (OC) (QCLot: 6154344) - continued							
EP2415851-026	Anonymous	EP068: Endrin	72-20-8	0.5 mg/kg	101	55.8	138
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	73.2	50.5	145
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6154340)							
EP2415882-014	Anonymous	EP080: C6 - C9 Fraction	----	24 mg/kg	76.2	69.1	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6154342)							
EP2415727-039	Anonymous	EP071: C10 - C14 Fraction	----	1666 mg/kg	92.0	64.7	126
		EP071: C15 - C28 Fraction	----	2937 mg/kg	90.3	61.7	124
		EP071: C29 - C36 Fraction	----	477 mg/kg	87.0	64.6	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6154340)							
EP2415882-014	Anonymous	EP080: C6 - C10 Fraction	C6_C10	29 mg/kg	72.3	69.1	135
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6154342)							
EP2415727-039	Anonymous	EP071: >C10 - C16 Fraction	----	2315 mg/kg	91.3	64.7	126
		EP071: >C16 - C34 Fraction	----	2594 mg/kg	89.8	61.7	124
		EP071: >C34 - C40 Fraction	----	157 mg/kg	80.8	64.6	131
EP080: BTEXN (QCLot: 6154340)							
EP2415882-014	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	83.9	76.4	118
		EP080: Toluene	108-88-3	2 mg/kg	82.4	67.4	112
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156047)							
EP2415925-001	SB003_0.0-0.1	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	82.9	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	100	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	81.6	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	94.7	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	101	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	88.9	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	94.6	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	95.4	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156047)							
EP2415925-001	SB003_0.0-0.1	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	105	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	108	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	96.0	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	90.1	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	98.6	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	105	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	96.0	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	108	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	108	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	107	66.0	139

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156047) - continued							
EP2415925-001	SB003_0.0-0.1	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	103	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6156047)							
EP2415925-001	SB003_0.0-0.1	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	99.6	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	88.0	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	97.1	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	120	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	100	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	104	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	111	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6156047)							
EP2415925-001	SB003_0.0-0.1	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	102	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	101	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	95.8	60.0	130

CERTIFICATE OF ANALYSIS

Work Order	: **EP2415925**	Page	: 1 of 15
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024 16:25
Order number	: ----	Date Analysis Commenced	: 30-Oct-2024
C-O-C number	: ----	Issue Date	: 05-Nov-2024 18:02
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 21		
No. of samples analysed	: 10		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB003_0.0-0.1	SB003_0.5-0.6	SB004_0.0-0.1	SB004_0.5-0.6	SB005_0.0-0.1
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415925-001	EP2415925-002	EP2415925-005	EP2415925-006	EP2415925-009
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**8.5**	**9.2**	**8.7**	**8.8**	**8.9**
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**10.0**	**15.4**	**7.4**	**18.9**	**7.0**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	**6**
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**10**	**10**	**10**	**9**	**11**
Copper	7440-50-8	5	mg/kg		<5	<5	**5**	<5	<5
Lead	7439-92-1	5	mg/kg		<5	<5	**9**	**6**	<5
Nickel	7440-02-0	2	mg/kg		<2	<2	**4**	<2	<2
Zinc	7440-66-6	5	mg/kg		**5**	<5	**27**	**17**	**9**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB003_0.0-0.1	SB003_0.5-0.6	SB004_0.0-0.1	SB004_0.5-0.6	SB005_0.0-0.1
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415925-001	EP2415925-002	EP2415925-005	EP2415925-006	EP2415925-009
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB003_0.0-0.1	SB003_0.5-0.6	SB004_0.0-0.1	SB004_0.5-0.6	SB005_0.0-0.1
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415925-001	EP2415925-002	EP2415925-005	EP2415925-006	EP2415925-009
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0003**	<0.0002	**0.0011**	**0.0006**	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	**0.0002**	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB003_0.0-0.1	SB003_0.5-0.6	SB004_0.0-0.1	SB004_0.5-0.6	SB005_0.0-0.1
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415925-001	EP2415925-002	EP2415925-005	EP2415925-006	EP2415925-009
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB003_0.0-0.1	SB003_0.5-0.6	SB004_0.0-0.1	SB004_0.5-0.6	SB005_0.0-0.1
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415925-001	EP2415925-002	EP2415925-005	EP2415925-006	EP2415925-009
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0003**	<0.0002	**0.0013**	**0.0006**	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0003**	<0.0002	**0.0011**	**0.0006**	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0003**	<0.0002	**0.0013**	**0.0006**	<0.0002
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**89.7**	**91.3**	**98.8**	**92.6**	**78.4**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**132**	**123**	**124**	**124**	**113**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**97.5**	**96.1**	**97.8**	**92.0**	**97.4**
Toluene-D8	2037-26-5	0.2	%		**87.2**	**82.2**	**91.4**	**85.1**	**89.4**
4-Bromofluorobenzene	460-00-4	0.2	%		**94.3**	**89.2**	**97.6**	**93.2**	**96.5**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**106**	**104**	**106**	**101**	**110**
13C8-PFOA	----	0.0002	%		**106**	**98.0**	**104**	**107**	**108**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB005_0.5-0.6	SB015_0.0-0.1	SB015_0.5-0.6	----	----
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		EP2415925-010	EP2415925-013	EP2415925-014	--------	--------
					Result	Result	Result	----	----
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**9.4**	**9.0**	**9.0**	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**7.9**	**1.2**	**1.7**	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**6**	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		**9**	**13**	**14**	----	----
Copper	7440-50-8	5	mg/kg		<5	<5	<5	----	----
Lead	7439-92-1	5	mg/kg		<5	<5	<5	----	----
Nickel	7440-02-0	2	mg/kg		<2	**3**	<2	----	----
Zinc	7440-66-6	5	mg/kg		<5	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB005_0.5-0.6	SB015_0.0-0.1	SB015_0.5-0.6	----	----
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		EP2415925-010	EP2415925-013	EP2415925-014	--------	--------
					Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB005_0.5-0.6	SB015_0.0-0.1	SB015_0.5-0.6	----	----
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EP2415925-010	EP2415925-013	EP2415925-014	--------	--------
				Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB005_0.5-0.6	SB015_0.0-0.1	SB015_0.5-0.6	----	----
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		EP2415925-010	EP2415925-013	EP2415925-014	--------	--------
					Result	Result	Result	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<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	<0.0002	<0.0002	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
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	<0.0005	<0.0005	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB005_0.5-0.6	SB015_0.0-0.1	SB015_0.5-0.6	----	----
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		EP2415925-010	EP2415925-013	EP2415925-014	--------	--------
					Result	Result	Result	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<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	<0.0002	<0.0002	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**88.6**	**87.3**	**86.0**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**108**	**91.2**	**79.6**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**96.5**	**95.5**	**94.6**	----	----
Toluene-D8	2037-26-5	0.2	%		**76.5**	**88.6**	**85.3**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**89.0**	**100.0**	**93.0**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**105**	**106**	**102**	----	----
13C8-PFOA	----	0.0002	%		**102**	**105**	**106**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC306	QC506	----	----	----
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415925-020	EP2415925-021	--------	--------	--------
					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	0.01	µg/L		<0.01	<0.01	----	----	----
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	----	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	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									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC306	QC506	----	----	----
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415925-020	EP2415925-021	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	----	----	----
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	%		**100**	**102**	----	----	----
13C8-PFOA	----	0.02	%		**104**	**107**	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	53	152
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	28	152
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	132
Toluene-D8	2037-26-5	66	125
4-Bromofluorobenzene	460-00-4	60	124
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Mandatory Fields | **CHAIN OF CUSTODY**

Page ___of___

CLIENT CODE:	SENVER	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	CL
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0434 152 590	SAMPLER MOBILE:	0408 156 431
OFFICE: (Invoiced Office)		ALS QUOTE # (Client PL if blank)	EP24SENVER0010	PURCHASE ORDER NO.:	
PROJECT NO./PROJECT:		P21560 MRWA Kwinana DSI		SITE:	Anketell Road
*INVOICE TO: (Client default if all)	supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au				X CC Invoice to PM
*EMAIL REPORTS TO: (Default to PM if blank)	paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au				

CoC #: (if applicable)

Environmental Division Perth

Work Order Reference EP2415957

Telephone -- 61-8-9406 1301

*** STORAGE REQUIREMENTS** (Please check box →) — Standard Storage time from receipt of samples: Waters - 3 weeks, Soils - 2 months
- X Standard Storage
- ☐ Extended Storage — Specify Disposal Date: — Note: Extended storage incurs a fee and requires a signed agreement.

*** TURNAROUND** (Please check box → Not all tests can be expedited, contact Client Services for more information)
- X 5+ days (no surcharge)
- ☐ 3 day (+15%)
- ☐ 2 day (+30%)
- ☐ 1 day (+50%)

***ANALYSIS REQUIRED**
(All ALS Quote No. and/or Analysis Suite Codes must be listed to attract suite quoted price)
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
Mark an X in the boxes below analysis to indicate the parameter listed above to be tested on that sample.

Comments: Rec RA 24/10 @ 845.

ALS Use Only	Sample ID	Depth	Date/Time	N	O	R	MATRIX: Soil (S) Water (W) Sediments (SD) Dust (D) Product (P) Biota (B) Rinsate (RS)	Soil Suite 1 - Metals	Soil Suite 2 - OCPs/TRHBTEXN	Soil Suite 3 - PFAS	Soil Suite 4 - pH	Soil Suite 5 - Major cations/anions	Soil Suite 6 - Nutrients	Water Suite 1 - ASS suite	Water Suite 2 - Major ions/metals/TRHBTEXN/ OCPs	Water Suite 3 - PFAS SUT			Holds	Additional	Comment on Metals (e.g. asbestos fibres)
1	SB018_0.0-0.1		22/10/2024				S	X		X	X	X								☐	☐
2	SB018_0.5-0.6		22/10/2024				S	X		X	X	X								☐	☐
3	SB018_1.0-1.1		22/10/2024				S												X	☐	☐
4	SB018_1.9-2.0		22/10/2024				S												X	☐	☐
	SB019_0.0-0.1		22/10/2024				S	X		X	X	X								☐	☐
	SB019_0.5-0.6		22/10/2024				S	X		X	X	X								☐	☐
	SB019_1.0-1.1		22/10/2024				S												X	☐	☐
	SB019_1.9-2.0		22/10/2024				S												X	☐	☐
	SB020_0.0-0.1		22/10/2024				S	X		X	X	X								☐	☐
	SB020_0.5-0.6		22/10/2024				S	X		X	X	X								☐	☐
	SB020_1.0-1.1		22/10/2024				S												X	☐	☐
	SB020_1.9-2.0		22/10/2024				S												X	☐	☐
	SB021_0.0-0.1		22/10/2024				S	X		X	X	X								☐	☐
	SB021_0.5-0.6		22/10/2024				S	X		X	X	X								☐	☐
	SB021_1.0-1.1		22/10/2024				S												X	☐	☐
	SB021_1.9-2.0		22/10/2024				S												X	☐	☐
	SB022_0.0-0.1		22/10/2024				S	X		X	X	X								☐	☐
	SB022_0.5-0.6		22/10/2024				S												X	☐	☐
	SB022_1.0-1.1		22/10/2024				S												X	☐	☐
	SB022_2.0-2.1		22/10/2024				S												X	☐	☐
	SB022_3.0-3.1		22/10/2024				S												X	☐	☐
	SB022_4.0-4.1		22/10/2024				S												X	☐	☐
	SB022_5.0-5.1		22/10/2024				S												X	☐	☐
	SB022_6.0-6.1		22/10/2024				S	X		X	X	X								☐	☐
SUR -	SB022_6.9-7.0		22/10/2024				S												X	☐	☐
	SB023_0.0-0.1		22/10/2024				S	X		X	X	X								☐	☐
	SB023_0.5-0.6		22/10/2024				S	X		X	X	X								☐	☐
	SB023_1.0-1.1		22/10/2024				S												X	☐	☐
	SB023_1.9-2.0		22/10/2024				S												X	☐	☐
	SB024_0.0-0.1		22/10/2024				S	X		X	X	X								☐	☐
	SB024_0.5-0.6		22/10/2024				S												X	☐	☐
	SB024_1.0-1.1		22/10/2024				S	X		X	X	X								☐	☐
	SB024_1.9-2.0		22/10/2024				S												X	☐	☐
	SB025_0.0-0.1		22/10/2024				S	X		X	X	X								☐	☐
	SB025_0.5-0.6		22/10/2024				S												X	☐	☐
	SB025_1.0-1.1		22/10/2024				S												X	☐	☐
	SB025_2.0-2.1		22/10/2024				S												X	☐	☐
	SB025_3.0-3.1		22/10/2024				S												X	☐	☐
	SB025_4.0-4.1		22/10/2024				S												X	☐	☐
	SB025_4.9-5.0		22/10/2024				S	X		X	X	X								☐	☐
	SB026_0.0-0.1		22/10/2024				S	X		X	X	X								☐	☐
	SB026_0.5-0.6		22/10/2024				S												X	☐	☐
	SB026_1.0-1.1		22/10/2024				S												X	☐	☐
	SB026_2.0-2.1		22/10/2024				S												X	☐	☐
	SB026_3.0-3.1		22/10/2024				S												X	☐	☐
	SB026_4.0-4.1		22/10/2024				S												X	☐	☐
	SB026_5.0-5.1		22/10/2024				S												X	☐	☐
	SB026_6.0-6.1		22/10/2024				S												X	☐	☐

Mandatory Fields		CHAIN OF CUSTODY				Page ___of___
CLIENT CODE:	SENVER	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	CL	
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0434 152 590	SAMPLER MOBILE:	0408 156 431	CoC #: (if applicable)
OFFICE: (Invoiced Office)		ALS QUOTE #: (Client PL if blank)	EP24SENVER0010	PURCHASE ORDER NO.:		
PROJECT NO./PROJECT:		P21560 MRWA Kwinana DSI		SITE:	Anketell Road	
*INVOICE TO: (client default if null)	supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au				X CC Invoice to PM	BIOSECURITY
*EMAIL REPORTS TO: (default to PM if blank)	paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au					Country of Origin: (if not Australia)

*** STORAGE REQUIREMENTS** (Please check box →) Standard Storage time from receipt of samples: Waters - 3 months, Soils - 2 months
- X Standard Storage
- ☐ Extended Storage — Specify Disposal Date: — *Note: Extended storage incurs a fee and requires a signed agreement.*

*** TURNAROUND** (Please check box →) (Not all tests can be expedited, contact Client Services for more information)
- X 5+ days (no surcharge)
- ☐ 3 day (+15%)
- ☐ 2 day (+30%)
- ☐ 1 day (+50%)

***ANALYSIS REQUIRED**
(NB: ALS Codes/Fee and/or Analysis Suite Codes must be listed to attract correct quoted price.)
Where Metals are required, specify Total or Dissolved (to be requested in Dissolved Field Filtered Bottle required).
Mark an X in the boxes below analysis to indicate the parameter listed above to be tested on that sample.

Comments:

WO Sticker to go here. (ALS use only)

ALS use Only	Sample ID	Depth	Date/Time	Z	G	S	Soil Suite 1 - Metals	Soil Suite 2 - OCPs/TRH/BTEX/Naphthalene	Soil Suite 3 - PFAS	Soil Suite 4 - pH	Soil Suite 5 - Major cations/anions	Soil Suite 6 - Nutrients	Water Suite 1 - ASS suite	Water Suite 2 - Major ions/metals/TRH/BTEX/Naphthalene/OCPs	Water Suite 3 - PFAS SUT			Holds	Lab QC (additional)	Additional Information (Comment on hazards - e.g. asbestos, toxins)
	SB026_6.9-7.0		22/10/2024			S	X		X	X	X								☐	☐
	SB027_0.0-0.1		22/10/2024			S	X	X	X	X	X	X							☐	☐
SNR	SB027_0.5-0.6		22/10/2024			S	X	X	X	X	X	X							☐	☐
SNR	SB027_1.0-1.1		22/10/2024			S												X	☐	☐
	SB027_1.5-1.6		22/10/2024			S												X	☐	☐
	SB027_1.9-2.0		22/10/2024			S												X	☐	☐
5	SB028_0.0-0.1		22/10/2024			S	X	X	X	X		X							☐	☐
6	SB028_0.5-0.6		22/10/2024			S	X	X	X	X		X							☐	☐
7	SB028_1.0-1.1		22/10/2024			S												X	☐	☐
SNR	SB028_1.5-1.6		22/10/2024			S												X	☐	☐
8	SB028_1.9-2.0		22/10/2024			S												X	☐	☐
9	SB029_0.0-0.1		22/10/2024			S	X	X	X	X		X							☐	☐
10	SB029_0.5-0.6		22/10/2024			S	X	X	X	X		X							☐	☐
11	SB029_1.0-1.1		22/10/2024			S												X	☐	☐
SNR	SB029_1.5-1.6		22/10/2024			S												X	☐	☐
12	SB029_1.9-2.0		22/10/2024			S												X	☐	☐
13	SB030_0.0-0.1		22/10/2024			S	X	X	X	X		X							☐	☐
14	SB030_0.5-0.6		22/10/2024			S	X	X	X	X		X							☐	☐
15	SB030_1.0-1.1		22/10/2024			S												X	☐	☐
SNR	SB030_1.5-1.6		22/10/2024			S												X	☐	☐
16	SB030_1.9-2.0		22/10/2024			S												X	☐	☐
	SB031_0.0-0.1		22/10/2024			S	X	X	X	X		X							☐	☐
	SB031_0.5-0.6		22/10/2024			S	X	X	X	X		X							☐	☐
SNR	SB031_1.0-1.1		22/10/2024			S												X	☐	☐
SNR	SB031_1.5-1.6		22/10/2024			S												X	☐	☐
	SB031_1.9-2.0		22/10/2024			S												X	☐	☐
17	SB032_0.0-0.1		22/10/2024			S	X	X	X	X		X							☐	☐
18	SB032_0.5-0.6		22/10/2024			S	X	X	X	X		X							☐	☐
19	SB032_1.0-1.1		22/10/2024			S												X	☐	☐
SNR	SB032_1.5-1.6		22/10/2024			S												X	☐	☐
20	SB032_1.9-2.0		22/10/2024			S												X	☐	☐
21	SB033_0.0-0.1		22/10/2024			S	X	X	X	X		X							☐	☐
22	SB033_0.5-0.6		22/10/2024			S	X	X	X	X		X							☐	☐
23	SB033_1.0-1.1		22/10/2024			S												X	☐	☐
SNR	SB033_1.5-1.6		22/10/2024			S												X	☐	☐
24	SB033_1.9-2.0		22/10/2024			S												X	☐	☐
	SB034_0.0-0.1		22/10/2024			S	X	X	X	X	X	X							☐	☐
	SB034_0.5-0.6		22/10/2024			S	X	X	X	X	X	X							☐	☐
SNR	SB034_1.0-1.1		22/10/2024			S												X	☐	☐
SNR	SB034_1.5-1.6		22/10/2024			S												X	☐	☐
	SB034_1.9-2.0		22/10/2024			S												X	☐	☐
25	SB035_0.0-0.1		22/10/2024			S	X	X	X	X		X							☐	☐
26	SB035_0.5-0.6		22/10/2024			S	X	X	X	X		X							☐	☐
27	SB035_1.0-1.1		22/10/2024			S												X	☐	☐
SNR	SB035_1.5-1.6		22/10/2024			S												X	☐	☐
28	SB035_1.9-2.0		22/10/2024			S												X	☐	☐

Mandatory Fields | **CHAIN OF CUSTODY** | Page ___of___

CLIENT CODE:	SENVER	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	CL
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0434 152 590	SAMPLER MOBILE:	0408 156 431
OFFICE: (Invoiced Office)		ALS QUOTE # (Client PL if blank)	EP24SENVER0010	PURCHASE ORDER NO.:	
PROJECT NO./PROJECT:	P21560 MRWA Kwinana DSI			SITE:	Anketell Road

CoC #: (If applicable)

*INVOICE TO: (Client default if nil) supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au — X CC Invoice to PM

BIOSECURITY

*EMAIL REPORTS TO: (Default to PM if blank) paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au

Country of Origin: (If not Australia)

*** STORAGE REQUIREMENTS** (Please check box →) Standard Storage Time from receipt of samples: Waters - 3 weeks, Soils - 2 months. X Standard Storage; ☐ Extended Storage. Specify Disposal Date: *Note: Extended storage incurs a fee and requires a signed agreement.*

*** TURNAROUND** (Please check box →) (Not all tests can be expedited, contact Client Services for more information) X 5+ days (no surcharge); ☐ 3 day (+15%); ☐ 2 day (+30%); ☐ 1 day (+50%)

***ANALYSIS REQUIRED**
Refer ALS Quote No. and/or Analysis Suite Codes must be listed to attract suite discounted prices.
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
Mark an X in the boxes below analysis to indicate the parameter listed above to be tested on that sample.

Comments:

WO Sticker to go here. (ALS use only)

ALS use Only	Sample ID	Depth	Date/Time	N	C	B	MATRIX: Solids (S), Waters (W), Sediments (SD), Dust (D), Air (A), Biota (B), Biosolid (BS)	Soil Suite 1 - Metals	Soil Suite 2 - OCPs/TRH/BTEXN	Soil Suite 3 - HFAS	Soil Suite 4 - pH	Soil Suite 5 - Major cations/anions	Soil Suite 6 - Nutrients	Water Suite 1 - ASS suite	Water Suite 2 - Major ions/cations/TRH/BTEXN/ OCPs	Water Suite 3 - PFAS SUT			Hold	Lab QC (Additional)		Additional Information (Comment on hazards - e.g. Asbestos, known
	SB036_0.0-0.1		22/10/2024				S	X		X	X		X							☐	☐	
	SB036_0.5-0.6		22/10/2024				S	X		X	X		X							☐	☐	
	SB036_1.0-1.1		22/10/2024				S												X	☐	☐	
	SB036_1.9-2.0		22/10/2024				S												X	☐	☐	
	SB037_0.0-0.1		22/10/2024				S	X		X	X		X							☐	☐	
	SB037_0.5-0.6		22/10/2024				S	X		X	X		X							☐	☐	
	SB037_1.0-1.1		22/10/2024				S												X	☐	☐	
RL	SB037_1.9-2.0		22/10/2024				S												X	☐	☐	
27	SB038_0.0-0.1		22/10/2024				S	X		X	X		X							☐	☐	
28	SB038_0.5-0.6		22/10/2024				S	X		X	X		X							☐	☐	
	SB038_1.0-1.1		22/10/2024				S												X	☐	☐	
	SB038_1.9-2.0		22/10/2024				S												X	☐	☐	
	SB039_0.0-0.1		22/10/2024				S	X		X	X		X							☐	☐	
	SB039_0.5-0.6		22/10/2024				S	X		X	X		X							☐	☐	
	SB039_1.0-1.1		22/10/2024				S													☐	☐	
	SB039_1.9-2.0		22/10/2024				S													☐	☐	
29	SB040_0.0-0.1		22/10/2024				S	X	X	X	X		X							☐	☐	
30	SB040_0.5-0.6		22/10/2024				S	X	X	X	X		X							☐	☐	
31	SB040_1.0-1.1		22/10/2024				S												X	☐	☐	
32	SB040_2.0-2.1		22/10/2024				S												X	☐	☐	
SWR	SB040_2.5-2.6		22/10/2024				S												X	☐	☐	
33	SB040_3.0-3.1		22/10/2024				S												X	☐	☐	
34	SB040_4.0-4.1		22/10/2024				S												X	☐	☐	
35	SB040_4.9-5.0		22/10/2024				S												X	☐	☐	

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2415957**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 5
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: CL		

Dates

Date Samples Received	: 24-Oct-2024 08:45	Issue Date	: 30-Oct-2024
Client Requested Due Date	: 06-Nov-2024	Scheduled Reporting Date	: **06-Nov-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 8	Temperature	: 13.4 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 40 / 21

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Sulfide as S2- : EK085		
QC304	- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Zinc Acetate/NaOH

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - NT-8S NH3, NO2, NO3, NOX, TKN, TN, TP	SOIL - S-02 8 Metals (incl. Digestion)
EP2415957-001	22-Oct-2024 00:00	SB018_0.0-0.1		✓	✓	✓	✓		✓
EP2415957-002	22-Oct-2024 00:00	SB018_0.5-0.6		✓	✓	✓	✓		✓
EP2415957-003	22-Oct-2024 00:00	SB018_1.0-1.1	✓						
EP2415957-004	22-Oct-2024 00:00	SB018_1.9-2.0	✓						
EP2415957-005	22-Oct-2024 00:00	SB028_0.0-0.1		✓	✓			✓	✓
EP2415957-006	22-Oct-2024 00:00	SB028_0.5-0.6		✓	✓			✓	✓
EP2415957-007	22-Oct-2024 00:00	SB028_1.0-1.1	✓						
EP2415957-008	22-Oct-2024 00:00	SB028_1.9-2.0	✓						
EP2415957-009	22-Oct-2024 00:00	SB029_0.0-0.1		✓	✓			✓	✓
EP2415957-010	22-Oct-2024 00:00	SB029_0.5-0.6		✓	✓			✓	✓
EP2415957-011	22-Oct-2024 00:00	SB029_1.0-1.1	✓						
EP2415957-012	22-Oct-2024 00:00	SB029_1.9-2.0	✓						
EP2415957-013	22-Oct-2024 00:00	SB030_0.0-0.1		✓	✓			✓	✓
EP2415957-014	22-Oct-2024 00:00	SB030_0.5-0.6		✓	✓			✓	✓
EP2415957-015	22-Oct-2024 00:00	SB030_1.0-1.1	✓						
EP2415957-016	22-Oct-2024 00:00	SB030_1.9-2.0	✓						
EP2415957-017	22-Oct-2024 00:00	SB032_0.0-0.1		✓	✓			✓	✓
EP2415957-018	22-Oct-2024 00:00	SB032_0.5-0.6		✓	✓			✓	✓
EP2415957-019	22-Oct-2024 00:00	SB032_1.0-1.1	✓						
EP2415957-020	22-Oct-2024 00:00	SB032_1.9-2.0	✓						
EP2415957-021	22-Oct-2024 00:00	SB033_0.0-0.1		✓	✓			✓	✓
EP2415957-022	22-Oct-2024 00:00	SB033_0.5-0.6		✓	✓			✓	✓
EP2415957-023	22-Oct-2024 00:00	SB033_1.0-1.1	✓						
EP2415957-024	22-Oct-2024 00:00	SB033_1.9-2.0	✓						
EP2415957-025	22-Oct-2024 00:00	SB035_0.0-0.1		✓	✓			✓	✓
EP2415957-026	22-Oct-2024 00:00	SB035_0.5-0.6		✓	✓			✓	✓
EP2415957-027	22-Oct-2024 00:00	SB035_1.0-1.1	✓						
EP2415957-028	22-Oct-2024 00:00	SB035_1.9-2.0	✓						
EP2415957-029	22-Oct-2024 00:00	SB040_0.0-0.1		✓	✓			✓	✓
EP2415957-030	22-Oct-2024 00:00	SB040_0.5-0.6		✓	✓			✓	✓
EP2415957-031	22-Oct-2024 00:00	SB040_1.0-1.1	✓						
EP2415957-032	22-Oct-2024 00:00	SB040_2.0-2.1	✓						
EP2415957-033	22-Oct-2024 00:00	SB040_3.0-3.1	✓						

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-2S Major Anions (Cl, SO4)	SOIL - NT-8S NH3, NO2, NO3, NOX, TKN, TN, TP	SOIL - S-02 8 Metals (incl. Digestion)
EP2415957-034	22-Oct-2024 00:00	SB040_4.0-4.1	✓						
EP2415957-035	22-Oct-2024 00:00	SB040_4.9-5.0	✓						
EP2415957-036	22-Oct-2024 00:00	QC105		✓	✓	✓	✓		✓
EP2415957-037	22-Oct-2024 00:00	QC106		✓	✓				
EP2415957-038	22-Oct-2024 00:00	QC107		✓	✓	✓	✓		✓

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA002 pH (1:5)	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - S-04 TRH/BTEXN
EP2415957-005	22-Oct-2024 00:00	SB028_0.0-0.1	✓	✓	✓
EP2415957-006	22-Oct-2024 00:00	SB028_0.5-0.6	✓	✓	✓
EP2415957-009	22-Oct-2024 00:00	SB029_0.0-0.1	✓	✓	✓
EP2415957-010	22-Oct-2024 00:00	SB029_0.5-0.6	✓	✓	✓
EP2415957-013	22-Oct-2024 00:00	SB030_0.0-0.1	✓	✓	✓
EP2415957-014	22-Oct-2024 00:00	SB030_0.5-0.6	✓	✓	✓
EP2415957-017	22-Oct-2024 00:00	SB032_0.0-0.1	✓	✓	✓
EP2415957-018	22-Oct-2024 00:00	SB032_0.5-0.6	✓	✓	✓
EP2415957-021	22-Oct-2024 00:00	SB033_0.0-0.1	✓	✓	✓
EP2415957-022	22-Oct-2024 00:00	SB033_0.5-0.6	✓	✓	✓
EP2415957-025	22-Oct-2024 00:00	SB035_0.0-0.1	✓	✓	✓
EP2415957-026	22-Oct-2024 00:00	SB035_0.5-0.6	✓	✓	✓
EP2415957-029	22-Oct-2024 00:00	SB040_0.0-0.1	✓	✓	✓
EP2415957-030	22-Oct-2024 00:00	SB040_0.5-0.6	✓	✓	✓
EP2415957-036	22-Oct-2024 00:00	QC105	✓		
EP2415957-038	22-Oct-2024 00:00	QC107	✓		

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - ASSGW-2 Acid Sulphate Soil GW Suite - Extended	WATER - EP231X PFAS - Full Suite (31 analytes)
EP2415957-039	22-Oct-2024 00:00	QC304	✓	✓
EP2415957-040	22-Oct-2024 00:00	QC504		✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

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

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EA005-P: pH by Auto Titrator							
QC304	Clear Plastic Bottle - Natural	----	22-Oct-2024	24-Oct-2024	×	----	----
EK085: Sulfide as S2-							
QC304	Clear Plastic Bottle - Natural	----	23-Oct-2024	24-Oct-2024	×	----	----

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2415957**	Page	: 1 of 19
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024
Site	: Anketell Road	Issue Date	: 07-Nov-2024
Sampler	: CL	No. of samples received	: 40
Order number	: ----	No. of samples analysed	: 21

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 Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EK067G: Total Phosphorus as P by Discrete Analyser	EP2415957--018	SB032_0.5-0.6	**Total Phosphorus as P**	----	54.4 %	0% - 50%	**RPD exceeds LOR based limits**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
SB028_0.0-0.1,	SB028_0.5-0.6,	06-Nov-2024	29-Oct-2024	**8**	----	----	----
SB029_0.0-0.1,	SB029_0.5-0.6,						
SB030_0.0-0.1,	SB030_0.5-0.6,						
SB032_0.0-0.1,	SB032_0.5-0.6,						
SB033_0.0-0.1,	SB033_0.5-0.6,						
SB035_0.0-0.1,	SB035_0.5-0.6,						
SB040_0.0-0.1,	SB040_0.5-0.6,						
QC105,	QC107						
EK057G: Nitrite as N by Discrete Analyser							
Soil Glass Jar - Unpreserved							
SB028_0.0-0.1,	SB028_0.5-0.6,	06-Nov-2024	29-Oct-2024	**8**	----	----	----
SB029_0.0-0.1,	SB029_0.5-0.6,						
SB030_0.0-0.1,	SB030_0.5-0.6,						
SB032_0.0-0.1,	SB032_0.5-0.6,						
SB033_0.0-0.1,	SB033_0.5-0.6,						
SB035_0.0-0.1,	SB035_0.5-0.6,						
SB040_0.0-0.1,	SB040_0.5-0.6						

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
QC304	----	----	----	06-Nov-2024	22-Oct-2024	**15**
EA015: Total Dissolved Solids dried at 180 ± 5 °C						
Clear Plastic Bottle - Natural						
QC304	----	----	----	31-Oct-2024	29-Oct-2024	**2**
ED037P: Alkalinity by PC Titrator						
Clear Plastic Bottle - Natural						
QC304	----	----	----	06-Nov-2024	05-Nov-2024	**1**

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EK071G: Reactive Phosphorus as P by discrete analyser						
Clear Plastic Bottle - Natural						
QC304	----	----	----	31-Oct-2024	24-Oct-2024	**7**
EK085M: Sulfide as S2-						
Clear Plastic Bottle - Natural						
QC304	----	----	----	31-Oct-2024	23-Oct-2024	**8**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6, SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6, QC105, QC107	**22-Oct-2024**	**06-Nov-2024**	29-Oct-2024	×	**06-Nov-2024**	06-Nov-2024	✓

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)							
QC106	**22-Oct-2024**	**----**	----	----	**05-Nov-2024**	05-Nov-2024	✓
Soil Glass Jar - Unpreserved (EA055)							
SB018_0.0-0.1, SB018_0.5-0.6, SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6, SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6, QC105, QC107	**22-Oct-2024**	**----**	----	----	**05-Nov-2024**	05-Nov-2024	✓
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved (ED040S)							
SB018_0.0-0.1, SB018_0.5-0.6, QC105, QC107	**22-Oct-2024**	**06-Nov-2024**	19-Nov-2024	✓	**06-Nov-2024**	04-Dec-2024	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
SB018_0.0-0.1, SB018_0.5-0.6, QC105, QC107	**22-Oct-2024**	**06-Nov-2024**	19-Nov-2024	✓	**06-Nov-2024**	04-Dec-2024	✓
ED093S: Soluble Major Cations							
Soil Glass Jar - Unpreserved (ED093S)							
SB018_0.0-0.1, SB018_0.5-0.6, QC105, QC107	**22-Oct-2024**	**06-Nov-2024**	20-Apr-2025	✓	**06-Nov-2024**	20-Apr-2025	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
SB018_0.0-0.1, SB018_0.5-0.6, SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6, SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6, QC105, QC107	**22-Oct-2024**	**05-Nov-2024**	20-Apr-2025	✓	**06-Nov-2024**	20-Apr-2025	✓

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
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
SB018_0.0-0.1,	SB018_0.5-0.6,	**22-Oct-2024**	**05-Nov-2024**	19-Nov-2024	✓	**06-Nov-2024**	19-Nov-2024	✓
SB028_0.0-0.1,	SB028_0.5-0.6,							
SB029_0.0-0.1,	SB029_0.5-0.6,							
SB030_0.0-0.1,	SB030_0.5-0.6,							
SB032_0.0-0.1,	SB032_0.5-0.6,							
SB033_0.0-0.1,	SB033_0.5-0.6,							
SB035_0.0-0.1,	SB035_0.5-0.6,							
SB040_0.0-0.1,	SB040_0.5-0.6,							
QC105,	QC107							
EK055: Ammonia as N								
Soil Glass Jar - Unpreserved (EK055)								
SB028_0.0-0.1,	SB028_0.5-0.6,	**22-Oct-2024**	**----**	----	----	**31-Oct-2024**	19-Nov-2024	✓
SB029_0.0-0.1,	SB029_0.5-0.6,							
SB030_0.0-0.1,	SB030_0.5-0.6,							
SB032_0.0-0.1,	SB032_0.5-0.6,							
SB033_0.0-0.1,	SB033_0.5-0.6,							
SB035_0.0-0.1,	SB035_0.5-0.6,							
SB040_0.0-0.1,	SB040_0.5-0.6							
EK057G: Nitrite as N by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK057G)								
SB028_0.0-0.1,	SB028_0.5-0.6,	**22-Oct-2024**	**06-Nov-2024**	29-Oct-2024	×	**06-Nov-2024**	08-Nov-2024	✓
SB029_0.0-0.1,	SB029_0.5-0.6,							
SB030_0.0-0.1,	SB030_0.5-0.6,							
SB032_0.0-0.1,	SB032_0.5-0.6,							
SB033_0.0-0.1,	SB033_0.5-0.6,							
SB035_0.0-0.1,	SB035_0.5-0.6,							
SB040_0.0-0.1,	SB040_0.5-0.6							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK059G)								
SB028_0.0-0.1,	SB028_0.5-0.6,	**22-Oct-2024**	**06-Nov-2024**	19-Nov-2024	✓	**06-Nov-2024**	08-Nov-2024	✓
SB029_0.0-0.1,	SB029_0.5-0.6,							
SB030_0.0-0.1,	SB030_0.5-0.6,							
SB032_0.0-0.1,	SB032_0.5-0.6,							
SB033_0.0-0.1,	SB033_0.5-0.6,							
SB035_0.0-0.1,	SB035_0.5-0.6,							
SB040_0.0-0.1,	SB040_0.5-0.6							

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
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Soil Glass Jar - Unpreserved (EK061G)								
SB028_0.0-0.1,	SB028_0.5-0.6,	**22-Oct-2024**	**04-Nov-2024**	19-Nov-2024	✓	**06-Nov-2024**	02-Dec-2024	✓
SB029_0.0-0.1,	SB029_0.5-0.6,							
SB030_0.0-0.1,	SB030_0.5-0.6,							
SB032_0.0-0.1,	SB032_0.5-0.6,							
SB033_0.0-0.1,	SB033_0.5-0.6,							
SB035_0.0-0.1,	SB035_0.5-0.6,							
SB040_0.0-0.1,	SB040_0.5-0.6							
EK067G: Total Phosphorus as P by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK067G)								
SB028_0.0-0.1,	SB028_0.5-0.6,	**22-Oct-2024**	**04-Nov-2024**	19-Nov-2024	✓	**06-Nov-2024**	02-Dec-2024	✓
SB029_0.0-0.1,	SB029_0.5-0.6,							
SB030_0.0-0.1,	SB030_0.5-0.6,							
SB032_0.0-0.1,	SB032_0.5-0.6,							
SB033_0.0-0.1,	SB033_0.5-0.6,							
SB035_0.0-0.1,	SB035_0.5-0.6,							
SB040_0.0-0.1,	SB040_0.5-0.6							
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
SB028_0.5-0.6,	SB029_0.0-0.1	**22-Oct-2024**	**04-Nov-2024**	05-Nov-2024	✓	**04-Nov-2024**	14-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP068)								
SB028_0.0-0.1,	SB029_0.5-0.6,	**22-Oct-2024**	**04-Nov-2024**	05-Nov-2024	✓	**05-Nov-2024**	14-Dec-2024	✓
SB030_0.0-0.1,	SB030_0.5-0.6,							
SB032_0.0-0.1,	SB032_0.5-0.6,							
SB033_0.0-0.1,	SB033_0.5-0.6							
Soil Glass Jar - Unpreserved (EP068)								
SB035_0.0-0.1,	SB035_0.5-0.6,	**22-Oct-2024**	**04-Nov-2024**	05-Nov-2024	✓	**06-Nov-2024**	14-Dec-2024	✓
SB040_0.0-0.1,	SB040_0.5-0.6							

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
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6, SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6	**22-Oct-2024**	**04-Nov-2024**	05-Nov-2024	✓	**05-Nov-2024**	14-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
SB028_0.0-0.1	**22-Oct-2024**	**31-Oct-2024**	05-Nov-2024	✓	**01-Nov-2024**	05-Nov-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6, SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6	**22-Oct-2024**	**31-Oct-2024**	05-Nov-2024	✓	**02-Nov-2024**	05-Nov-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6, SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6	**22-Oct-2024**	**04-Nov-2024**	05-Nov-2024	✓	**05-Nov-2024**	14-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
SB028_0.0-0.1	**22-Oct-2024**	**31-Oct-2024**	05-Nov-2024	✓	**01-Nov-2024**	05-Nov-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6, SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6	**22-Oct-2024**	**31-Oct-2024**	05-Nov-2024	✓	**02-Nov-2024**	05-Nov-2024	✓

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
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
SB028_0.0-0.1	**22-Oct-2024**	**31-Oct-2024**	05-Nov-2024	✓	**01-Nov-2024**	05-Nov-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6, SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6	**22-Oct-2024**	**31-Oct-2024**	05-Nov-2024	✓	**02-Nov-2024**	05-Nov-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6, QC105, QC106, QC107	**22-Oct-2024**	**01-Nov-2024**	20-Apr-2025	✓	**01-Nov-2024**	11-Dec-2024	✓
HDPE Soil Jar (EP231X)							
SB018_0.0-0.1, SB018_0.5-0.6, SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6, QC105, QC106, QC107	**22-Oct-2024**	**01-Nov-2024**	20-Apr-2025	✓	**01-Nov-2024**	11-Dec-2024	✓
HDPE Soil Jar (EP231X)							
SB018_0.0-0.1, SB018_0.5-0.6, SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓

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
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6, QC105, QC106, QC107	**22-Oct-2024**	**01-Nov-2024**	20-Apr-2025	✓	**01-Nov-2024**	11-Dec-2024	✓
HDPE Soil Jar (EP231X) SB018_0.0-0.1, SB018_0.5-0.6, SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6, QC105, QC106, QC107	**22-Oct-2024**	**01-Nov-2024**	20-Apr-2025	✓	**01-Nov-2024**	11-Dec-2024	✓
HDPE Soil Jar (EP231X) SB018_0.0-0.1, SB018_0.5-0.6, SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) SB033_0.0-0.1, SB033_0.5-0.6, SB035_0.0-0.1, SB035_0.5-0.6, SB040_0.0-0.1, SB040_0.5-0.6, QC105, QC106, QC107	**22-Oct-2024**	**01-Nov-2024**	20-Apr-2025	✓	**01-Nov-2024**	11-Dec-2024	✓
HDPE Soil Jar (EP231X) SB018_0.0-0.1, SB018_0.5-0.6, SB028_0.0-0.1, SB028_0.5-0.6, SB029_0.0-0.1, SB029_0.5-0.6, SB030_0.0-0.1, SB030_0.5-0.6, SB032_0.0-0.1, SB032_0.5-0.6	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**04-Nov-2024**	10-Dec-2024	✓

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

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
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
QC304	22-Oct-2024	----	----	----	06-Nov-2024	22-Oct-2024	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
QC304	22-Oct-2024	----	----	----	06-Nov-2024	19-Nov-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
QC304	22-Oct-2024	----	----	----	31-Oct-2024	29-Oct-2024	×
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
QC304	22-Oct-2024	----	----	----	06-Nov-2024	05-Nov-2024	×
ED038A: Acidity							
Clear Plastic Bottle - Natural (ED038)							
QC304	22-Oct-2024	----	----	----	05-Nov-2024	05-Nov-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
QC304	22-Oct-2024	----	----	----	31-Oct-2024	19-Nov-2024	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
QC304	22-Oct-2024	----	----	----	31-Oct-2024	19-Nov-2024	✓
ED093F: Dissolved Major Cations							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (ED093F)							
QC304	22-Oct-2024	----	----	----	01-Nov-2024	19-Nov-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG020A-F)							
QC304	22-Oct-2024	----	----	----	01-Nov-2024	20-Apr-2025	✓
EG020T: Total Metals by ICP-MS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG020A-T)							
QC304	22-Oct-2024	01-Nov-2024	20-Apr-2025	✓	01-Nov-2024	20-Apr-2025	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
QC304	22-Oct-2024	----	----	----	03-Nov-2024	19-Nov-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
QC304	22-Oct-2024	----	----	----	03-Nov-2024	19-Nov-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
QC304	22-Oct-2024	03-Nov-2024	19-Nov-2024	✓	03-Nov-2024	19-Nov-2024	✓

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
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
QC304	**22-Oct-2024**	**03-Nov-2024**	19-Nov-2024	✓	**03-Nov-2024**	19-Nov-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
QC304	**22-Oct-2024**	**----**	----	----	**31-Oct-2024**	24-Oct-2024	×
EK085M: Sulfide as S2-							
Clear Plastic Bottle - Natural (EK085)							
QC304	**22-Oct-2024**	**----**	----	----	**31-Oct-2024**	23-Oct-2024	×
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC304, QC504	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**31-Oct-2024**	20-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
QC304, QC504	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**31-Oct-2024**	20-Apr-2025	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
QC304, QC504	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**31-Oct-2024**	20-Apr-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC304, QC504	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**31-Oct-2024**	20-Apr-2025	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
QC304, QC504	**22-Oct-2024**	**31-Oct-2024**	20-Apr-2025	✓	**31-Oct-2024**	20-Apr-2025	✓

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)							
Buchi Ammonia	EK055	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cations - soluble by ICP-AES	ED093S	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Buchi Ammonia	EK055	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cations - soluble by ICP-AES	ED093S	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	5	**40.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Buchi Ammonia	EK055	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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	
Method Blanks (MB) - Continued							
Cations - soluble by ICP-AES	ED093S	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Buchi Ammonia	EK055	2	29	6.90	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	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)							
Acidity as Calcium Carbonate	ED038	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	18	11.11	10.00	✓	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) - Continued							
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	12	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Acidity as Calcium Carbonate	ED038	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	16	**18.75**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	12	**25.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	16	**18.75**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	20	**5.00**	**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*	
Method Blanks (MB) - Continued							
Total Dissolved Solids (High Level)	EA015H	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	12	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	9	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
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 Schedule B(3).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Cations - soluble by ICP-AES	ED093S	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH3 B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO3- F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NOx-N) and nitrate (NO3-N) by calculation, Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by direct colourimetry by Discrete Analyser.
TKN as N By Discrete Analyser	EK061G	SOIL	In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.
Total Nitrogen as N (TKN + NOx) By Discrete Analyser	EK062G	SOIL	In house: Referenced to APHA 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrrogen, each determined seperately as N.

Analytical Methods	Method	Matrix	Method Descriptions
Total Phosphorus By Discrete Analyser	EK067G	SOIL	In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Acidity as Calcium Carbonate	ED038	WATER	In house: Referenced to APHA 2310 B Acidity is determined by manual titration with a standardised alkali to an end-point pH of 8.3. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Sulfide as S2-	EK085	WATER	In house: Referenced to APHA 4500-S2- D. Sulfide species present in water samples are immediately precipitated when collected in pretreated caustic/zinc acetate preserved sample containers. The sulfides are coloured using methylene blue indicator. Non-detects may be screened by comparison against a standard at half-LOR, otherwise samples are measured using UV-VIS detection at 664nm. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	SOIL	In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QUALITY CONTROL REPORT

Work Order	: **EP2415957**	Page	: 1 of 27
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024
Order number	: ----	Date Analysis Commenced	: 31-Oct-2024
C-O-C number	: ----	Issue Date	: 07-Nov-2024
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 40		
No. of samples analysed	: 21		

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, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
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Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6165651)									
EP2415957-001	SB018_0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	27	28	4.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EP2416079-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	9	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	7	46.3	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	7	20.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	38	30	23.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	27	33	21.7	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6165655)									
EP2415957-030	SB040_0.5-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6165655) - continued									
EP2415957-030	SB040_0.5-0.6	EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EP2416177-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	12	26.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	15	5	96.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	9	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	13	16.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	283	312	9.8	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 6165622)									
EP2415957-022	SB033_0.5-0.6	EA002: pH Value	----	0.1	pH Unit	8.4	8.2	2.8	0% - 20%
EP2415957-005	SB028_0.0-0.1	EA002: pH Value	----	0.1	pH Unit	6.3	6.3	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6165682)									
EP2415957-001	SB018_0.0-0.1	EA055: Moisture Content	----	0.1 (1.0)*	%	1.9	2.1	10.7	No Limit
EP2415957-021	SB033_0.0-0.1	EA055: Moisture Content	----	0.1 (1.0)*	%	2.4	2.2	7.7	No Limit
ED040S: Soluble Major Anions (QC Lot: 6165620)									
EP2415957-001	SB018_0.0-0.1	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6165619)									
EP2415957-001	SB018_0.0-0.1	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
ED093S: Soluble Major Cations (QC Lot: 6165621)									
EP2415957-001	SB018_0.0-0.1	ED093S: Calcium	7440-70-2	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	<10	<10	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	<10	<10	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6165652)									
EP2415957-001	SB018_0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2416079-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6165656)									
EP2415957-030	SB040_0.5-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2416177-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK055: Ammonia as N (QC Lot: 6157431)									
EP2415810-001	Anonymous	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EP2415810-018	Anonymous	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK055: Ammonia as N (QC Lot: 6157432)									
EP2415957-014	SB030_0.5-0.6	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6165623)									
EP2415957-025	SB035_0.0-0.1	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6165623) - continued									
EP2415957-005	SB028_0.0-0.1	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6165624)									
EP2415957-025	SB035_0.0-0.1	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	1.4	1.3	8.4	0% - 50%
EP2415957-005	SB028_0.0-0.1	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.6	0.6	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6160014)									
EP2415034-046	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	260	250	4.9	0% - 50%
EP2415957-018	SB032_0.5-0.6	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	200	320	48.8	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6160013)									
EP2415034-046	Anonymous	EK067G: Total Phosphorus as P	----	2	mg/kg	326	324	0.6	0% - 20%
EP2415957-018	SB032_0.5-0.6	EK067G: Total Phosphorus as P	----	2	mg/kg	20	# 12	54.4	0% - 50%
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6156803)									
EP2415957-005	SB028_0.0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6156803) - continued									
EP2415957-005	SB028_0.0-0.1	EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP2415957-025	SB035_0.0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6156801)									
EP2415957-005	SB028_0.0-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP2415957-025	SB035_0.0-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6156802)									
EP2415957-005	SB028_0.0-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2415957-025	SB035_0.0-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6156801)									
EP2415957-005	SB028_0.0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP2415957-025	SB035_0.0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6156802)									
EP2415957-005	SB028_0.0-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2415957-025	SB035_0.0-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 6156801)									
EP2415957-005	SB028_0.0-0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP2415957-025	SB035_0.0-0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6156047)									
EP2415903-028	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415957-001	SB018_0.0-0.1	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6156047) - continued									
EP2415957-001	SB018_0.0-0.1	EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6156048)									
EP2415953-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2416018-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6156047)									
EP2415903-028	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2415957-001	SB018_0.0-0.1	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6156047) - continued									
EP2415957-001	SB018_0.0-0.1	EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6156048)									
EP2415953-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2416018-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6156047)									
EP2415903-028	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6156047) - continued									
EP2415903-028	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415957-001	SB018_0.0-0.1	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6156048)									
EP2415953-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2416018-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6156048) - continued									
EP2416018-001	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6156047)									
EP2415903-028	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2415957-001	SB018_0.0-0.1	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6156048)									
EP2415953-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2416018-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6156047)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231P: PFAS Sums (QC Lot: 6156047) - continued									
EP2415903-028	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2415957-001	SB018_0.0-0.1	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6156048)									
EP2415953-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2416018-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 6166062)									
EP2415830-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.67	7.68	0.1	0% - 20%
EP2416310-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.12	8.15	0.4	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6166063)									
EP2415830-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1880	1890	0.4	0% - 20%
EP2416310-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	677	674	0.4	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6157103)									
EP2415996-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	91500	96300	5.0	0% - 20%
EP2415926-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	590	578	2.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6166064)									
EP2415830-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	161	166	3.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	161	166	3.0	0% - 20%
EP2416310-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	141	146	3.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	141	146	3.5	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED038A: Acidity (QC Lot: 6164833)									
EP2415957-039	QC304	ED038: Acidity as CaCO3	----	1	mg/L	2	3	0.0	No Limit
EP2416082-002	Anonymous	ED038: Acidity as CaCO3	----	1	mg/L	7	9	32.1	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6157744)									
EP2415984-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	608	633	3.9	0% - 20%
EP2415993-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	38	38	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6157745)									
EP2415984-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	260	258	1.0	0% - 20%
EP2415993-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	174	174	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6157000)									
EP2415944-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	42	45	5.7	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	27	26	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	38	36	4.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.0	0% - 50%
EP2415944-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	60	56	5.9	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	38	38	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	44	44	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	7	7	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6157001)									
EP2415957-039	QC304	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP2415944-008	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.004	0.003	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6157001) - continued									
EP2415944-008	Anonymous	EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.154	0.152	0.9	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 6156900)									
EP2415949-003	Anonymous	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.04	0.04	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP2415963-001	Anonymous	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6162511)									
EP2415821-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP2416000-007	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	74.5	74.7	0.2	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6162510)									
EP2415821-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.74	1.73	0.0	0% - 20%
EP2416000-007	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	14.8	14.8	0.5	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6162506)									
EP2415821-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.3	0.3	0.0	No Limit
ES2435196-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	85.6	78.9	8.2	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6162507)									
EP2415821-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.04	66.7	No Limit
ES2435196-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	8.63	8.78	1.7	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6157743)									
EP2415984-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP2415993-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK085M: Sulfide as S2- (QC Lot: 6156766)									
EP2415810-041	Anonymous	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP2415979-004	Anonymous	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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 (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6165651)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	77.39 mg/kg	100	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.93 mg/kg	90.7	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	18.67 mg/kg	96.7	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	46.13 mg/kg	104	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	58.42 mg/kg	98.8	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	14.48 mg/kg	95.3	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	190.4 mg/kg	93.9	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6165655)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	77.39 mg/kg	106	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.93 mg/kg	80.3	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	18.67 mg/kg	96.9	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	46.13 mg/kg	98.0	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	58.42 mg/kg	94.1	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	14.48 mg/kg	93.9	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	190.4 mg/kg	95.1	70.0	130
EA002: pH 1:5 (Soils) (QCLot: 6165622)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.6	102
				----	7 pH Unit	99.6	98.6	102
ED040S: Soluble Major Anions (QCLot: 6165620)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	104	91.7	116
ED045G: Chloride by Discrete Analyser (QCLot: 6165619)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	100	88.0	112
				<10	5000 mg/kg	107	88.0	112
ED093S: Soluble Major Cations (QCLot: 6165621)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	250 mg/kg	104	89.2	109
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	250 mg/kg	103	88.3	110
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	101	89.4	118
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	97.6	89.4	101
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6165652)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.115 mg/kg	76.5	70.0	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	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6165656)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.115 mg/kg	70.9	70.0	130
EK055: Ammonia as N (QCLot: 6157431)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	50 mg/kg	89.5	76.1	110
EK055: Ammonia as N (QCLot: 6157432)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	50 mg/kg	89.9	76.1	110
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6165623)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	104	90.6	108
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6165624)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	105	88.5	110
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6160014)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	1000 mg/kg	95.5	70.0	110
				<20	100 mg/kg	106	70.0	128
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6160013)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	440 mg/kg	88.4	70.0	110
				<2	44 mg/kg	89.2	73.9	120
EP068A: Organochlorine Pesticides (OC) (QCLot: 6156803)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	46.0	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	53.0	133
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	45.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	46.0	122
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	47.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	52.3	40.0	118
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	47.0	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	41.0	119
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	43.0	119
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	41.0	131
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	41.0	119
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	112	41.0	127
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	44.0	122
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	37.0	129
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	41.0	127
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	68.4	42.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 6156803) - continued								
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	31.2	117
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	38.0	120
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	110	31.4	125
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	31.2	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	114	24.7	125
EP068: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6156801)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	35 mg/kg	104	66.0	122
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6156802)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	1666 mg/kg	94.8	70.0	111
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2937 mg/kg	89.4	71.9	109
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	477 mg/kg	91.0	63.8	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6156801)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	101	66.0	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6156802)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	2315 mg/kg	92.2	72.8	110
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	2594 mg/kg	91.0	67.8	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	157 mg/kg	91.0	50.3	123
EP080: BTEXN (QCLot: 6156801)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	106	72.0	122
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	104	75.0	119
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	101	73.0	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	102	74.0	122
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	105	75.0	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	84.0	64.0	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156047)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	104	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	96.8	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.6	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	95.8	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	101	70.0	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156047) - continued								
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	106	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	108	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	105	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156048)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	95.2	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	94.5	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.4	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	97.9	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	102	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	88.4	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	98.8	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	100	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156047)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	99.7	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	83.2	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.6	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156048)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	93.5	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.0	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.4	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	69.0	135

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156048) - continued								
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	106	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6156047)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.8	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	94.4	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6156048)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.2	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.9	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	118	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.6	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	121	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6156047)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	103	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	96.2	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	101	54.8	124
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6156048)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	97.4	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	108	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	90.8	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	91.2	54.8	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 6156047)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231P: PFAS Sums (QCLot: 6156048)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA005P: pH by PC Titrator (QCLot: 6166062)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.5	102
				----	7 pH Unit	100	98.5	102
EA010P: Conductivity by PC Titrator (QCLot: 6166063)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	96.9	92.1	105
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6157103)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	99.1	80.0	120
				<10	293 mg/L	107	80.0	120
				<10	2410 mg/L	108	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 6166064)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	106	85.1	126
				<1	200 mg/L	102	90.5	111
ED038A: Acidity (QCLot: 6164833)								
ED038: Acidity as CaCO3	----	----	mg/L	----	20.3 mg/L	104	70.0	130
				----	405.5 mg/L	92.3	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6157744)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	102	89.9	112
				<1	500 mg/L	107	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 6157745)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED045G: Chloride by Discrete Analyser (QCLot: 6157745) - continued								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	98.8	88.6	113
				<1	1000 mg/L	104	88.6	113
ED093F: Dissolved Major Cations (QCLot: 6157000)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	98.3	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	110	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.6	84.6	108
EG020F: Dissolved Metals by ICP-MS (QCLot: 6157001)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	101	90.2	111
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	90.3	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.9	89.7	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	87.3	107
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	99.5	88.8	109
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.4	88.9	108
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.2	89.4	106
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	101	87.6	106
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	87.2	108
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.4	83.8	102
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	105	89.5	112
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	112	89.9	120
EG020T: Total Metals by ICP-MS (QCLot: 6156900)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	108	91.6	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	115	95.0	132
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6162511)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	107	90.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6162510)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.6	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6162506)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	96.9	69.0	123
				<0.1	1 mg/L	112	70.0	123
				<0.1	5 mg/L	99.1	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6162507)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6162507) - continued								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	97.7	71.3	126
				<0.01	0.442 mg/L	111	71.3	126
				<0.01	1 mg/L	104	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6157743)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	103	89.4	109
EK085M: Sulfide as S2- (QCLot: 6156766)								
EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	0.5 mg/L	92.8	84.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6158556)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	----	----	----	----
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	73.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	76.5	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	70.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	74.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	73.3	65.0	140
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	0.24 µg/L	82.9	70.0	135
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	69.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6158556)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	73.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	73.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	72.2	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	72.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	76.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	71.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	82.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	71.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	72.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	66.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	81.0	71.0	132
EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	0.25 µg/L	83.6	46.1	144
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6158556)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	88.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	70.2	60.5	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6158556) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	86.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	71.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	81.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	76.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6158556)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	75.8	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	78.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	76.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	96.5	64.2	133
EP231P: PFAS Sums (QCLot: 6158556)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

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	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6165651)							
EP2415957-001	SB018_0.0-0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	109	70.0	130
		EG005T: Cadmium	7440-43-9	12.5 mg/kg	108	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	108	70.0	130
		EG005T: Copper	7440-50-8	50 mg/kg	108	70.0	130
		EG005T: Lead	7439-92-1	50 mg/kg	109	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	108	70.0	130
		EG005T: Zinc	7440-66-6	50 mg/kg	107	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6165655)							
EP2416177-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	105	70.0	130
		EG005T: Cadmium	7440-43-9	12.5 mg/kg	100	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	98.9	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6165655) - continued							
EP2416177-001	Anonymous	EG005T: Copper	7440-50-8	50 mg/kg	102	70.0	130
		EG005T: Lead	7439-92-1	50 mg/kg	102	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.0	70.0	130
		EG005T: Zinc	7440-66-6	50 mg/kg	112	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6165619)							
EP2415957-002	SB018_0.5-0.6	ED045G: Chloride	16887-00-6	1000 mg/kg	124	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6165652)							
EP2415957-001	SB018_0.0-0.1	EG035T: Mercury	7439-97-6	1 mg/kg	100	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6165656)							
EP2416177-001	Anonymous	EG035T: Mercury	7439-97-6	1 mg/kg	93.3	70.0	130
EK055: Ammonia as N (QCLot: 6157431)							
EP2415810-002	Anonymous	EK055: Ammonia as N	7664-41-7	50 mg/kg	88.6	70.0	130
EK055: Ammonia as N (QCLot: 6157432)							
EP2415957-017	SB032_0.0-0.1	EK055: Ammonia as N	7664-41-7	50 mg/kg	89.7	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6165623)							
EP2415957-006	SB028_0.5-0.6	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	112	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6165624)							
EP2415957-006	SB028_0.5-0.6	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	100	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6160014)							
EP2415034-047	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	94.2	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6160013)							
EP2415034-047	Anonymous	EK067G: Total Phosphorus as P	----	100 mg/kg	128	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 6156803)							
EP2415957-006	SB028_0.5-0.6	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	104	57.9	124
		EP068: Heptachlor	76-44-8	0.5 mg/kg	82.5	57.4	135
		EP068: Aldrin	309-00-2	0.5 mg/kg	98.2	59.6	125
		EP068: Dieldrin	60-57-1	0.5 mg/kg	102	62.2	131
		EP068: Endrin	72-20-8	0.5 mg/kg	65.4	55.8	138
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	120	50.5	145
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6156801)							
EP2415957-006	SB028_0.5-0.6	EP080: C6 - C9 Fraction	----	24 mg/kg	97.7	69.1	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6156802)							
EP2415957-006	SB028_0.5-0.6	EP071: C10 - C14 Fraction	----	1666 mg/kg	88.0	64.7	126
		EP071: C15 - C28 Fraction	----	2937 mg/kg	83.8	61.7	124
		EP071: C29 - C36 Fraction	----	477 mg/kg	85.2	64.6	131

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6156801)							
EP2415957-006	SB028_0.5-0.6	EP080: C6 - C10 Fraction	C6_C10	29 mg/kg	92.9	69.1	135
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6156802)							
EP2415957-006	SB028_0.5-0.6	EP071: >C10 - C16 Fraction	----	2315 mg/kg	85.6	64.7	126
		EP071: >C16 - C34 Fraction	----	2594 mg/kg	85.4	61.7	124
		EP071: >C34 - C40 Fraction	----	157 mg/kg	85.7	64.6	131
EP080: BTEXN (QCLot: 6156801)							
EP2415957-006	SB028_0.5-0.6	EP080: Benzene	71-43-2	2 mg/kg	104	76.4	118
		EP080: Toluene	108-88-3	2 mg/kg	105	67.4	112
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156047)							
EP2415925-001	Anonymous	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	82.9	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	100	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	81.6	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	94.7	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	101	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	88.9	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	94.6	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	95.4	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6156048)							
EP2415957-021	SB033_0.0-0.1	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	94.4	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	93.2	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	85.9	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	101	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	107	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	94.7	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	102	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	93.2	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156047)							
EP2415925-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	105	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	108	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	96.0	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	90.1	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	98.6	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	105	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	96.0	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	108	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	108	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	107	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	103	69.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6156048)							
EP2415957-021	SB033_0.0-0.1	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	95.2	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	93.6	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	100	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	88.7	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	94.8	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	117	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	93.5	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	91.2	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	104	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	98.0	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	119	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6156047)							
EP2415925-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	99.6	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	88.0	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	97.1	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	120	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	100	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	104	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	111	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6156048)							
EP2415957-021	SB033_0.0-0.1	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	105	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	98.1	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	89.3	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	119	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	103	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	97.2	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	114	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6156047)							
EP2415925-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	102	62.0	145

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6156047) - continued							
EP2415925-001	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	101	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	95.8	60.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6156048)							
EP2415957-021	SB033_0.0-0.1	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	102	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	108	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	102	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	97.1	60.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6157744)							
EP2415957-039	QC304	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	119	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 6157745)							
EP2415957-039	QC304	ED045G: Chloride	16887-00-6	200 mg/L	127	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6157001)							
EP2415944-011	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	115	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	110	70.0	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	111	70.0	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	111	70.0	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	109	70.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	109	70.0	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	109	70.0	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	112	70.0	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	112	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6162511)							
EP2415821-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	113	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6162510)							
EP2415821-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	102	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6162506)							
EP2415825-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	84.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6162507)							
EP2415825-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	97.6	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6157743)							
EP2415984-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	104	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK085M: Sulfide as S2- (QCLot: 6156766)							
EP2415957-039	QC304	EK085: Sulfide as S2-	18496-25-8	1 mg/L	107	70.0	130

CERTIFICATE OF ANALYSIS

Work Order	: **EP2415957**	Page	: 1 of 32
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024 08:45
Order number	: ----	Date Analysis Commenced	: 31-Oct-2024
C-O-C number	: ----	Issue Date	: 07-Nov-2024 11:55
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 40		
No. of samples analysed	: 21		

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, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
David Viner	SENIOR LAB TECH	Perth Organics, Wangara, WA
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EK067G (Total Phosphorus): Poor duplicate precision due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EA010-P (Conductivity): Sample EP2415957-39 positive result verified by re-analysis.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB018_0.0-0.1	SB018_0.5-0.6	SB028_0.0-0.1	SB028_0.5-0.6	SB029_0.0-0.1
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-001	EP2415957-002	EP2415957-005	EP2415957-006	EP2415957-009
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		----	----	6.3	6.5	6.6
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		1.9	1.3	<1.0	1.9	5.1
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		<10	<10	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		<10	<10	----	----	----
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		<10	<10	----	----	----
Magnesium	7439-95-4	10	mg/kg		<10	<10	----	----	----
Sodium	7440-23-5	10	mg/kg		<10	<10	----	----	----
Potassium	7440-09-7	10	mg/kg		<10	<10	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		6	8	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		27	33	4	5	8
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg		<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	----	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	----	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		----	----	0.6	0.6	0.7

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB018_0.0-0.1	SB018_0.5-0.6	SB028_0.0-0.1	SB028_0.5-0.6	SB029_0.0-0.1
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415957-001	EP2415957-002	EP2415957-005	EP2415957-006	EP2415957-009
				Result	Result	Result	Result	Result
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	**0.6**	**0.6**	**0.7**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	**350**	**90**	**380**
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	----	----	**350**	**90**	**380**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	----	----	**38**	**31**	**72**
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB018_0.0-0.1	SB018_0.5-0.6	SB028_0.0-0.1	SB028_0.5-0.6	SB029_0.0-0.1
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415957-001	EP2415957-002	EP2415957-005	EP2415957-006	EP2415957-009
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	----	----	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	----	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	----	----	<50	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg	----	----	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB018_0.0-0.1	SB018_0.5-0.6	SB028_0.0-0.1	SB028_0.5-0.6	SB029_0.0-0.1
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415957-001	EP2415957-002	EP2415957-005	EP2415957-006	EP2415957-009
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	----	----	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB018_0.0-0.1	SB018_0.5-0.6	SB028_0.0-0.1	SB028_0.5-0.6	SB029_0.0-0.1
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-001	EP2415957-002	EP2415957-005	EP2415957-006	EP2415957-009
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB018_0.0-0.1	SB018_0.5-0.6	SB028_0.0-0.1	SB028_0.5-0.6	SB029_0.0-0.1
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-001	EP2415957-002	EP2415957-005	EP2415957-006	EP2415957-009
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	111	110	108
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	115	112	108
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	106	94.6	91.4
Toluene-D8	2037-26-5	0.2	%		----	----	119	94.2	90.0
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	105	94.8	92.5
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		106	99.5	104	107	112
13C8-PFOA	----	0.0002	%		104	102	102	98.0	97.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB029_0.5-0.6	SB030_0.0-0.1	SB030_0.5-0.6	SB032_0.0-0.1	SB032_0.5-0.6
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-010	EP2415957-013	EP2415957-014	EP2415957-017	EP2415957-018
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		7.1	8.3	8.2	8.3	8.8
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		2.5	5.3	21.0	8.4	6.5
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		9	5	3	6	<2
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg		<5	<5	<5	6	<5
Nickel	7440-02-0	2	mg/kg		<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg		<5	<5	<5	17	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		0.2	<0.1	<0.1	0.4	0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		0.5	0.6	0.4	5.8	1.0
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		0.7	0.6	0.4	6.2	1.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		170	910	160	1790	200
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		170	910	160	1800	200
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		66	101	75	114	20
EP068A: Organochlorine Pesticides (OC)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB029_0.5-0.6	SB030_0.0-0.1	SB030_0.5-0.6	SB032_0.0-0.1	SB032_0.5-0.6
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415957-010	EP2415957-013	EP2415957-014	EP2415957-017	EP2415957-018
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP080/071: Total Petroleum Hydrocarbons								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB029_0.5-0.6	SB030_0.0-0.1	SB030_0.5-0.6	SB032_0.0-0.1	SB032_0.5-0.6
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-010	EP2415957-013	EP2415957-014	EP2415957-017	EP2415957-018
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB029_0.5-0.6	SB030_0.0-0.1	SB030_0.5-0.6	SB032_0.0-0.1	SB032_0.5-0.6
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-010	EP2415957-013	EP2415957-014	EP2415957-017	EP2415957-018
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB029_0.5-0.6	SB030_0.0-0.1	SB030_0.5-0.6	SB032_0.0-0.1	SB032_0.5-0.6
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415957-010	EP2415957-013	EP2415957-014	EP2415957-017	EP2415957-018
				Result	Result	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	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**103**	**96.3**	**97.5**	**110**	**91.1**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**69.2**	**79.2**	**79.8**	**90.2**	**70.4**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**94.1**	**95.2**	**93.8**	**91.1**	**96.7**
Toluene-D8	2037-26-5	0.2	%	**92.2**	**101**	**97.5**	**100**	**99.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB029_0.5-0.6	SB030_0.0-0.1	SB030_0.5-0.6	SB032_0.0-0.1	SB032_0.5-0.6
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-010	EP2415957-013	EP2415957-014	EP2415957-017	EP2415957-018
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		91.0	92.0	94.3	91.0	96.6
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		104	112	99.0	112	99.5
13C8-PFOA	----	0.0002	%		95.0	100	95.5	100	104

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB033_0.0-0.1	SB033_0.5-0.6	SB035_0.0-0.1	SB035_0.5-0.6	SB040_0.0-0.1
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-021	EP2415957-022	EP2415957-025	EP2415957-026	EP2415957-029
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		8.9	8.4	7.8	7.7	9.0
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		2.4	2.2	10.2	1.9	4.6
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		<2	<2	<2	<2	21
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	7
Lead	7439-92-1	5	mg/kg		<5	<5	25	<5	7
Nickel	7440-02-0	2	mg/kg		<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg		7	<5	36	<5	17
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		1.0	<0.1	1.4	0.1	0.6
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		1.0	<0.1	1.4	0.1	0.6
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		280	40	900	80	140
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		280	40	900	80	140
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		27	4	58	7	245
EP068A: Organochlorine Pesticides (OC)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB033_0.0-0.1	SB033_0.5-0.6	SB035_0.0-0.1	SB035_0.5-0.6	SB040_0.0-0.1
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-021	EP2415957-022	EP2415957-025	EP2415957-026	EP2415957-029
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP080/071: Total Petroleum Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB033_0.0-0.1	SB033_0.5-0.6	SB035_0.0-0.1	SB035_0.5-0.6	SB040_0.0-0.1
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-021	EP2415957-022	EP2415957-025	EP2415957-026	EP2415957-029
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB033_0.0-0.1	SB033_0.5-0.6	SB035_0.0-0.1	SB035_0.5-0.6	SB040_0.0-0.1
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-021	EP2415957-022	EP2415957-025	EP2415957-026	EP2415957-029
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB033_0.0-0.1	SB033_0.5-0.6	SB035_0.0-0.1	SB035_0.5-0.6	SB040_0.0-0.1
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415957-021	EP2415957-022	EP2415957-025	EP2415957-026	EP2415957-029
				Result	Result	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	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<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	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<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	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**93.4**	**105**	**87.3**	**85.8**	**82.8**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**74.3**	**59.4**	**50.4**	**51.7**	**57.6**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**101**	**105**	**93.7**	**102**	**95.5**
Toluene-D8	2037-26-5	0.2	%	**106**	**113**	**104**	**115**	**95.9**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB033_0.0-0.1	SB033_0.5-0.6	SB035_0.0-0.1	SB035_0.5-0.6	SB040_0.0-0.1
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415957-021	EP2415957-022	EP2415957-025	EP2415957-026	EP2415957-029
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**96.7**	**102**	**93.6**	**104**	**95.0**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**104**	**85.5**	**110**	**91.5**	**102**
13C8-PFOA	----	0.0002	%		**105**	**94.0**	**100**	**92.5**	**98.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB040_0.5-0.6	QC105	QC106	QC107	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit	EP2415957-030	EP2415957-036	EP2415957-037	EP2415957-038	--------
				Result	Result	Result	Result	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	**9.3**	**8.0**	----	**7.6**	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	----	**2.5**	----	----
Moisture Content	----	1.0	%	**2.2**	**2.3**	----	**1.8**	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	<10	----	<10	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	<10	----	<10	----
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	----	<10	----	<10	----
Magnesium	7439-95-4	10	mg/kg	----	<10	----	<10	----
Sodium	7440-23-5	10	mg/kg	----	<10	----	<10	----
Potassium	7440-09-7	10	mg/kg	----	<10	----	<10	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	<1	----
Chromium	7440-47-3	2	mg/kg	**2**	**8**	----	<2	----
Copper	7440-50-8	5	mg/kg	<5	<5	----	<5	----
Lead	7439-92-1	5	mg/kg	<5	<5	----	**26**	----
Nickel	7440-02-0	2	mg/kg	<2	<2	----	<2	----
Zinc	7440-66-6	5	mg/kg	<5	<5	----	**33**	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	<0.1	----
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB040_0.5-0.6	QC105	QC106	QC107	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit	EP2415957-030	EP2415957-036	EP2415957-037	EP2415957-038	--------
				Result	Result	Result	Result	----
EK058G: Nitrate as N by Discrete Analyser - Continued								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	**0.2**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	**0.2**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	**30**	----	----	----	----
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	**30**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	**43**	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB040_0.5-0.6	QC105	QC106	QC107	----
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit		EP2415957-030	EP2415957-036	EP2415957-037	EP2415957-038	--------
					Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB040_0.5-0.6	QC105	QC106	QC107	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit	EP2415957-030	EP2415957-036	EP2415957-037	EP2415957-038	--------
				Result	Result	Result	Result	----
EP080: BTEXN - Continued								
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB040_0.5-0.6	QC105	QC106	QC107	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit	EP2415957-030	EP2415957-036	EP2415957-037	EP2415957-038	--------
				Result	Result	Result	Result	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<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	<0.0002	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<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	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
EP231P: PFAS Sums								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB040_0.5-0.6	QC105	QC106	QC107	----
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----
Compound	CAS Number	LOR	Unit		EP2415957-030	EP2415957-036	EP2415957-037	EP2415957-038	--------
					Result	Result	Result	Result	----
EP231P: PFAS Sums - Continued									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**79.0**	**----**	**----**	**----**	**----**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**63.0**	**----**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**95.6**	**----**	**----**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**94.4**	**----**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**97.5**	**----**	**----**	**----**	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**89.5**	**112**	**97.5**	**112**	**----**
13C8-PFOA	----	0.0002	%		**93.5**	**102**	**91.0**	**98.0**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC304	QC504	----	----	----
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415957-039	EP2415957-040	--------	--------	--------
					Result	Result	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**5.51**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**2**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		<10	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		<1	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		<1	----	----	----	----
ED038A: Acidity									
Acidity as CaCO3	----	1	mg/L		**2**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		<1	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		<1	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		<1	----	----	----	----
Magnesium	7439-95-4	1	mg/L		<1	----	----	----	----
Sodium	7440-23-5	1	mg/L		<1	----	----	----	----
Potassium	7440-09-7	1	mg/L		<1	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC304	QC504	----	----	----
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415957-039	EP2415957-040	--------	--------	--------
					Result	Result	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	----	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	----	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		<0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		<0.1	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ **Total Nitrogen as N**	----	0.1	mg/L		<0.1	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		<0.01	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	----	----	----	----
EK085M: Sulfide as S2-									
Sulfide as S2-	18496-25-8	0.1	mg/L		<0.1	----	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		<0.01	----	----	----	----
ø **Total Cations**	----	0.01	meq/L		<0.01	----	----	----	----
ø **Ionic Balance**	----	0.01	%		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC304	QC504	----	----	----
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415957-039	EP2415957-040	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L		<0.02	<0.02	----	----	----
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	0.01	µg/L		<0.01	<0.01	----	----	----
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	----	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L		<0.02	<0.02	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC304	QC504	----	----	----
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415957-039	EP2415957-040	--------	--------	--------
					Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	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	----	----	----
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									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC304	QC504	----	----	----
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2415957-039	EP2415957-040	--------	--------	--------
					Result	Result	----	----	----
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.02	%		**104**	**99.0**	**----**	**----**	**----**
13C8-PFOA	----	0.02	%		**103**	**101**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	53	152
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	28	152
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	132
Toluene-D8	2037-26-5	66	125
4-Bromofluorobenzene	460-00-4	60	124
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

Mandatory Fields | **CHAIN OF CUSTODY** | Page ___of___

CLIENT CODE:	SENVERSA PTY LTD	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	SP/ECG
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0424 152 590	SAMPLER MOBILE:	
OFFICE: (Invoiced Office)		ALS QUOTE # (Client PL if known)	EP24SENVER0010	PURCHASE ORDER NO.:	
PROJECT NO./PROJECT:		P21560 MRWA Kwinana DSI		SITE:	Ankerell Road
*INVOICE TO: (Default to PM if not Client)	supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au				× QC Invoice to PM
*EMAIL REPORTS TO: (default to PM if blank)	paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au				

BIOSECURITY — Country of Origin: (if not Australia)

***STORAGE REQUIREMENTS** (Please check box →) (Standard Storage time from receipt of samples: Waters - 2 weeks; Soils - 2 months)
× Standard Storage
☐ Extended Storage
Specify Disposal Date:
Note: Extended storage incurs a fee and requires a signed agreement.

*** TURNAROUND** (Please check box → Note all tests can be expedited, contact Client Services for more information)
× 5+ days (no surcharge)
☐ 3 day (~15%)
☐ 2 day (~20%)
☐ 1 day (~50%)

***ANALYSIS REQUIRED**
Add ALS Quote No. and relevant Sub-Codes next to Client to ensure accurate service. Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required). Mark an X in the boxes below to indicate the parameter listed above to be tested on that sample.

Soil Suite 1 - Metals; Soil Suite 2 - OCPs/Herbicides; Soil Suite 3 - PFAS; Soil Suite 4 - pH; Soil Suite 5 - Metal oxides (oxides); Soil Suite 6 - Nutrients; TRH/BTEX; Water Suite 1 - Metals/TRH/BTEX/PAH/OCPs; Water Suite 2 - Metals (dissolved)/TRH/BTEX/PAH/OCPs; Water Suite 3 - PFAS Soil; TRH - C6-10; TPHD+ Surrogate/SGC; Hold

WO Sticker to go here. (ALS use only)

Comments:

Lab QC (additional qualities req.): Dup | MS

Additional Information (Comments on Methods e.g. volumes, known high concentrations)

ALS Use Only / Lab ID	Sample ID	Depth	Date/Time	No. Bottles	MATRIX: (Soil, Water (W), Groundwater (GW), Drinking Water (DW), Surface Water (SW), Effluent (Eff), Product (P), Waste (W), Biosolids (BS))	Soil Suite 1 - Metals	Soil Suite 2 - OCPs/Herbicides	Soil Suite 3 - PFAS	Soil Suite 4 - pH	Soil Suite 5 - Metal oxides (oxides)	Soil Suite 6 - Nutrients	TRH/BTEX	Water Suite 1 - Metals/TRH/BTEX/PAH/OCPs	Water Suite 2 - Metals (dissolved)/TRH/BTEX/PAH/OCPs	Water Suite 3 - PFAS Soil	TRH - C6-10	TPHD+ Surrogate/SGC	Hold	Dup	MS	Additional Information
1	SB041/MW02_0-0.1		18/11/2024			X	X	X	X										☐	☐	
2	SB041/MW02_0.4-0.5		18/11/2024															X	☐	☐	
3	SB041/MW02_0.9-1.0		18/11/2024															X	☐	☐	
4	SB041/MW02_1.9-2.0		18/11/2024															X	☐	☐	
5	SB041/MW02_2.9-3.0		18/11/2024															X	☐	☐	
6	SB041/MW02_3.9-4.0		18/11/2024															X	☐	☐	
7	SB041/MW02_4.9-5.0		18/11/2024															X	☐	☐	
8	SB041/MW02_5.9-6.0		18/11/2024															X	☐	☐	
9	SB041/MW02_6.9-7.0		18/11/2024															X	☐	☐	
10	SB041/MW02_7.9-8.0		18/11/2024															X	☐	☐	
11	SB041/MW02_8.9-9.0		18/11/2024															X	☐	☐	
12	SB041/MW02_9.9-10.0		18/11/2024															X	☐	☐	
13	SB041/MW02_10.9-11.0		18/11/2024															X	☐	☐	
14	SB041/MW02_11.9-12.0		18/11/2024															X	☐	☐	
SNR	SB041/MW02_12.9-13.0		18/11/2024															X	☐	☐	
16	SB041/MW02_13.9-14.0		18/11/2024															X	☐	☐	
17	SB041/MW02_14.9-15.0		18/11/2024			X			X		X								☐	☐	
18	SB041/MW02_21.9-22.0		18/11/2024															X	☐	☐	
19	SB041/MW02_22.9-23.0		18/11/2024															X	☐	☐	
20	SB041/MW02_23.9-24.0		18/11/2024			X			X		X								☐	☐	
21	QC116		18/11/2024															X	☐	☐	
EXRO	QC216		18/11/2024																☐	☐	Please send to Eurofins
22	SB001/MW01_0.0-0.05		21/11/2024			X	X	X	X										☐	☐	
23	SB001/MW01_0.4-0.5		21/11/2024															X	☐	☐	
24	SB001/MW01_0.9-1.0		21/11/2024															X	☐	☐	
25	SB001/MW01_1.9-2.0		21/11/2024															X	☐	☐	
26	SB001/MW01_2.9-3.0		21/11/2024			X			X		X								☐	☐	
27	SB001/MW01_3.9-4.0		21/11/2024															X	☐	☐	
28	SB001/MW01_4.9-5.0		21/11/2024															X	☐	☐	
29	SB001/MW01_5.9-6.0		21/11/2024															X	☐	☐	
30	SB001/MW01_6.9-7.0		21/11/2024															X	☐	☐	
31	SB001/MW01_7.9-8.0		21/11/2024															X	☐	☐	
32	SB001/MW01_8.9-9.0		21/11/2024															X	☐	☐	
33	SB001/MW01_9.9-10.0		21/11/2024			X			X		X								☐	☐	
34	SB001/MW01_10.9-11.0		21/11/2024															X	☐	☐	
35	SB001/MW01_11.9-12.0		21/11/2024															X	☐	☐	
36	SB001/MW01_12.9-13.0		21/11/2024															X	☐	☐	
37	QC507																		☐	☐	

Receipt Detail (Lab use only): Chilling Method: Ice / Ice Bricks / Frozen / Wetter / Frozen / Thawed / None; Temp: °C °C °C; Security Seal Intact (circle): Yes / No / NA(Vessel); Courier/Hand ☐ Courier/Hand ☐ Client; Con Note #; Packaging (Circle): Count: Hard Esky / Foam Esky / Eskimat/Other

Relinquished by: Signature: Date/Time:
Relinquished by: Signature: Date/Time:
Received by: Signature: Date/Time:
Received by: Signature: Date/Time: 14:05 22/11

Environmental Division
Perth
Work Order Reference
EP2417725

Telephone : -- 61-8-9406 1301

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2417725**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 4
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: SP/ECG		

Dates

Date Samples Received	: 22-Nov-2024 13:00	Issue Date	: 27-Nov-2024
Client Requested Due Date	: 09-Dec-2024	Scheduled Reporting Date	: **09-Dec-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 3	Temperature	: 11.4 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 36 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS : EP231X		
SB041/MW02_0-0.1	- Pulp Bag	- HDPE Soil Jar
Pesticides by GCMS : EP068		
SB041/MW02_0-0.1	- Pulp Bag	- Soil Glass Jar - Unpreserved
TRH - Semivolatile Fraction : EP071		
SB041/MW02_0-0.1	- Pulp Bag	- Soil Glass Jar - Unpreserved
SB041/MW02_14.9-15.0	- Pulp Bag	- Soil Glass Jar - Unpreserved
SB001/MW01_9.9-10.0	- Pulp Bag	- Soil Glass Jar - Unpreserved
TRH Volatiles/BTEX : EP080		
SB001/MW01_9.9-10.0	- Pulp Bag	- Soil Glass Jar - Unpreserved

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EP2417725-013 : [18-Nov-2024] : SB041/MW02_10.9-11.0
EP2417725-014 : [18-Nov-2024] : SB041/MW02_11.9-12.0
EP2417725-016 : [18-Nov-2024] : SB041/MW02_13.9-14.0
EP2417725-017 : [18-Nov-2024] : SB041/MW02_14.9-15.0
EP2417725-018 : [18-Nov-2024] : SB041/MW02_21.9-22.0
EP2417725-019 : [18-Nov-2024] : SB041/MW02_22.9-23.0
EP2417725-020 : [18-Nov-2024] : SB041/MW02_23.9-24.0
EP2417725-034 : [21-Nov-2024] : SB001/MW01_10.9-11.0
EP2417725-035 : [21-Nov-2024] : SB001/MW01_11.9-12.0
EP2417725-036 : [21-Nov-2024] : SB001/MW01_12.9-13.0

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN
EP2417725-001	18-Nov-2024 00:00	SB041/MW02_0-0.1		✓		✓	✓	✓	✓
EP2417725-002	18-Nov-2024 00:00	SB041/MW02_0.4-0.5	✓						
EP2417725-003	18-Nov-2024 00:00	SB041/MW02_0.9-1.0	✓						
EP2417725-004	18-Nov-2024 00:00	SB041/MW02_1.9-2.0	✓						
EP2417725-005	18-Nov-2024 00:00	SB041/MW02_2.9-3.0	✓						
EP2417725-006	18-Nov-2024 00:00	SB041/MW02_3.9-4.0	✓						
EP2417725-007	18-Nov-2024 00:00	SB041/MW02_4.9-5.0	✓						
EP2417725-008	18-Nov-2024 00:00	SB041/MW02_5.9-6.0	✓						
EP2417725-009	18-Nov-2024 00:00	SB041/MW02_6.9-7.0	✓						
EP2417725-010	18-Nov-2024 00:00	SB041/MW02_7.9-8.0	✓						
EP2417725-011	18-Nov-2024 00:00	SB041/MW02_8.9-9.0	✓						
EP2417725-012	18-Nov-2024 00:00	SB041/MW02_9.9-10.0	✓						
EP2417725-013	18-Nov-2024 00:00	SB041/MW02_10.9-11.0	✓						
EP2417725-014	18-Nov-2024 00:00	SB041/MW02_11.9-12.0	✓						
EP2417725-016	18-Nov-2024 00:00	SB041/MW02_13.9-14.0	✓						
EP2417725-017	18-Nov-2024 00:00	SB041/MW02_14.9-15.0		✓				✓	✓
EP2417725-018	18-Nov-2024 00:00	SB041/MW02_21.9-22.0	✓						

			(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-04 TRH/BTEXN
EP2417725-019	18-Nov-2024 00:00	SB041/MW02_22.9-23.0	✓						
EP2417725-020	18-Nov-2024 00:00	SB041/MW02_23.9-24.0		✓	✓			✓	✓
EP2417725-021	18-Nov-2024 00:00	QC116	✓						
EP2417725-022	21-Nov-2024 00:00	SB001/MW01_0.0-0.05		✓	✓	✓	✓	✓	✓
EP2417725-023	21-Nov-2024 00:00	SB001/MW01_0.4-0.5	✓						
EP2417725-024	21-Nov-2024 00:00	SB001/MW01_0.9-1.0	✓						
EP2417725-025	21-Nov-2024 00:00	SB001/MW01_1.9-2.0	✓						
EP2417725-026	21-Nov-2024 00:00	SB001/MW01_2.9-3.0		✓	✓			✓	✓
EP2417725-027	21-Nov-2024 00:00	SB001/MW01_3.9-4.0	✓						
EP2417725-028	21-Nov-2024 00:00	SB001/MW01_4.9-5.0	✓						
EP2417725-029	21-Nov-2024 00:00	SB001/MW01_5.9-6.0	✓						
EP2417725-030	21-Nov-2024 00:00	SB001/MW01_6.9-7.0	✓						
EP2417725-031	21-Nov-2024 00:00	SB001/MW01_7.9-8.0	✓						
EP2417725-032	21-Nov-2024 00:00	SB001/MW01_8.9-9.0	✓						
EP2417725-033	21-Nov-2024 00:00	SB001/MW01_9.9-10.0		✓				✓	✓
EP2417725-034	21-Nov-2024 00:00	SB001/MW01_10.9-11.0	✓						
EP2417725-035	21-Nov-2024 00:00	SB001/MW01_11.9-12.0	✓						
EP2417725-036	21-Nov-2024 00:00	SB001/MW01_12.9-13.0	✓						
EP2417725-037	18-Nov-2024 00:00	QC507			✓				

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - S-18 TRH(C6-C9)/BTEXN
EP2417725-037	18-Nov-2024 00:00	QC507	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2417725**	Page	: 1 of 8
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 22-Nov-2024
Site	: Anketell Road	Issue Date	: 10-Dec-2024
Sampler	: SP/ECG	No. of samples received	: 36
Order number	: ----	No. of samples analysed	: 7

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.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **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
Laboratory Control Spike (LCS) Recoveries							
EP068A: Organochlorine Pesticides (OC)	QC-6219931-002	----	**alpha-BHC**	319-84-6	119 %	46.0-116%	**Recovery greater than upper control limit**
EP068A: Organochlorine Pesticides (OC)	QC-6219931-002	----	**delta-BHC**	319-86-8	118 %	47.0-117%	**Recovery greater than upper control limit**
EP068A: Organochlorine Pesticides (OC)	QC-6219931-002	----	**4.4`-DDD**	72-54-8	127 %	42.0-122%	**Recovery greater than upper control limit**
EP068A: Organochlorine Pesticides (OC)	QC-6219931-002	----	**Endrin ketone**	53494-70-5	140 %	31.2-123%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EG005(ED093)T: Total Metals by ICP-AES	EP2417517--001	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP068A: Organochlorine Pesticides (OC)	EP2417725--022	SB001/MW01_0.0-0.05	**4.4`-DDT**	50-29-3	17.5 %	50.5-145%	**Recovery less than lower data quality objective**
EP080/071: Total Petroleum Hydrocarbons	EP2417553--002	Anonymous	**C29 - C36 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EP2417553--002	Anonymous	**>C34 - C40 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)						
Pulp Bag SB041/MW02_0-0.1, SB041/MW02_14.9-15.0	05-Dec-2024	25-Nov-2024	**10**	----	----	----
Pulp Bag SB001/MW01_9.9-10.0	05-Dec-2024	28-Nov-2024	**7**	----	----	----
Soil Glass Jar - Unpreserved SB041/MW02_23.9-24.0	05-Dec-2024	25-Nov-2024	**10**	----	----	----
Soil Glass Jar - Unpreserved SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	05-Dec-2024	28-Nov-2024	**7**	----	----	----

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
EA002: pH 1:5 (Soils)							
Pulp Bag (EA002) SB041/MW02_0-0.1, SB041/MW02_14.9-15.0	**18-Nov-2024**	**05-Dec-2024**	25-Nov-2024	×	**05-Dec-2024**	05-Dec-2024	✓
Pulp Bag (EA002) SB001/MW01_9.9-10.0	**21-Nov-2024**	**05-Dec-2024**	28-Nov-2024	×	**05-Dec-2024**	05-Dec-2024	✓
Soil Glass Jar - Unpreserved (EA002) SB041/MW02_23.9-24.0	**18-Nov-2024**	**05-Dec-2024**	25-Nov-2024	×	**05-Dec-2024**	05-Dec-2024	✓
Soil Glass Jar - Unpreserved (EA002) SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	**21-Nov-2024**	**05-Dec-2024**	28-Nov-2024	×	**05-Dec-2024**	05-Dec-2024	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) SB041/MW02_23.9-24.0, QC507	**18-Nov-2024**	**----**	----	----	**28-Nov-2024**	02-Dec-2024	✓
Soil Glass Jar - Unpreserved (EA055) SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	**21-Nov-2024**	**----**	----	----	**28-Nov-2024**	05-Dec-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Pulp Bag (EG005T) SB041/MW02_0-0.1, SB041/MW02_14.9-15.0	**18-Nov-2024**	**28-Nov-2024**	17-May-2025	✓	**03-Dec-2024**	17-May-2025	✓
Pulp Bag (EG005T) SB001/MW01_9.9-10.0	**21-Nov-2024**	**06-Dec-2024**	20-May-2025	✓	**09-Dec-2024**	20-May-2025	✓
Soil Glass Jar - Unpreserved (EG005T) SB041/MW02_23.9-24.0	**18-Nov-2024**	**28-Nov-2024**	17-May-2025	✓	**03-Dec-2024**	17-May-2025	✓
Soil Glass Jar - Unpreserved (EG005T) SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	**21-Nov-2024**	**28-Nov-2024**	20-May-2025	✓	**03-Dec-2024**	20-May-2025	✓
EG035T: Total Recoverable Mercury by FIMS							
Pulp Bag (EG035T) SB041/MW02_0-0.1, SB041/MW02_14.9-15.0	**18-Nov-2024**	**28-Nov-2024**	16-Dec-2024	✓	**02-Dec-2024**	16-Dec-2024	✓
Pulp Bag (EG035T) SB001/MW01_9.9-10.0	**21-Nov-2024**	**06-Dec-2024**	19-Dec-2024	✓	**09-Dec-2024**	19-Dec-2024	✓
Soil Glass Jar - Unpreserved (EG035T) SB041/MW02_23.9-24.0	**18-Nov-2024**	**28-Nov-2024**	16-Dec-2024	✓	**02-Dec-2024**	16-Dec-2024	✓
Soil Glass Jar - Unpreserved (EG035T) SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	**21-Nov-2024**	**28-Nov-2024**	19-Dec-2024	✓	**02-Dec-2024**	19-Dec-2024	✓

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
EP068A: Organochlorine Pesticides (OC)							
Pulp Bag (EP068) SB041/MW02_0-0.1	**18-Nov-2024**	**28-Nov-2024**	02-Dec-2024	✓	**28-Nov-2024**	07-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP068) SB001/MW01_0.0-0.05	**21-Nov-2024**	**28-Nov-2024**	05-Dec-2024	✓	**29-Nov-2024**	07-Jan-2025	✓
EP080/071: Total Petroleum Hydrocarbons							
Pulp Bag (EP071) SB041/MW02_0-0.1, SB041/MW02_14.9-15.0	**18-Nov-2024**	**28-Nov-2024**	02-Dec-2024	✓	**29-Nov-2024**	07-Jan-2025	✓
Pulp Bag (EP080) SB001/MW01_9.9-10.0	**21-Nov-2024**	**03-Dec-2024**	05-Dec-2024	✓	**05-Dec-2024**	05-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) SB041/MW02_0-0.1, SB041/MW02_14.9-15.0, SB041/MW02_23.9-24.0, QC507	**18-Nov-2024**	**28-Nov-2024**	02-Dec-2024	✓	**28-Nov-2024**	02-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) SB041/MW02_23.9-24.0	**18-Nov-2024**	**28-Nov-2024**	02-Dec-2024	✓	**29-Nov-2024**	07-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	**21-Nov-2024**	**28-Nov-2024**	05-Dec-2024	✓	**28-Nov-2024**	05-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	**21-Nov-2024**	**28-Nov-2024**	05-Dec-2024	✓	**29-Nov-2024**	07-Jan-2025	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Pulp Bag (EP071) SB041/MW02_0-0.1, SB041/MW02_14.9-15.0	**18-Nov-2024**	**28-Nov-2024**	02-Dec-2024	✓	**29-Nov-2024**	07-Jan-2025	✓
Pulp Bag (EP080) SB001/MW01_9.9-10.0	**21-Nov-2024**	**03-Dec-2024**	05-Dec-2024	✓	**05-Dec-2024**	05-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) SB041/MW02_0-0.1, SB041/MW02_14.9-15.0, SB041/MW02_23.9-24.0, QC507	**18-Nov-2024**	**28-Nov-2024**	02-Dec-2024	✓	**28-Nov-2024**	02-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) SB041/MW02_23.9-24.0	**18-Nov-2024**	**28-Nov-2024**	02-Dec-2024	✓	**29-Nov-2024**	07-Jan-2025	✓
Soil Glass Jar - Unpreserved (EP080) SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	**21-Nov-2024**	**28-Nov-2024**	05-Dec-2024	✓	**28-Nov-2024**	05-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP071) SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	**21-Nov-2024**	**28-Nov-2024**	05-Dec-2024	✓	**29-Nov-2024**	07-Jan-2025	✓
EP080: BTEXN							
Pulp Bag (EP080) SB001/MW01_9.9-10.0	**21-Nov-2024**	**03-Dec-2024**	05-Dec-2024	✓	**05-Dec-2024**	05-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) SB041/MW02_0-0.1, SB041/MW02_14.9-15.0, SB041/MW02_23.9-24.0, QC507	**18-Nov-2024**	**28-Nov-2024**	02-Dec-2024	✓	**28-Nov-2024**	02-Dec-2024	✓
Soil Glass Jar - Unpreserved (EP080) SB001/MW01_0.0-0.05, SB001/MW01_2.9-3.0	**21-Nov-2024**	**28-Nov-2024**	05-Dec-2024	✓	**28-Nov-2024**	05-Dec-2024	✓

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
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) SB001/MW01_0.0-0.05	**21-Nov-2024**	**27-Nov-2024**	20-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓
Pulp Bag (EP231X) SB041/MW02_0-0.1	**18-Nov-2024**	**27-Nov-2024**	17-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) SB001/MW01_0.0-0.05	**21-Nov-2024**	**27-Nov-2024**	20-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓
Pulp Bag (EP231X) SB041/MW02_0-0.1	**18-Nov-2024**	**27-Nov-2024**	17-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) SB001/MW01_0.0-0.05	**21-Nov-2024**	**27-Nov-2024**	20-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓
Pulp Bag (EP231X) SB041/MW02_0-0.1	**18-Nov-2024**	**27-Nov-2024**	17-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) SB001/MW01_0.0-0.05	**21-Nov-2024**	**27-Nov-2024**	20-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓
Pulp Bag (EP231X) SB041/MW02_0-0.1	**18-Nov-2024**	**27-Nov-2024**	17-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) SB001/MW01_0.0-0.05	**21-Nov-2024**	**27-Nov-2024**	20-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓
Pulp Bag (EP231X) SB041/MW02_0-0.1	**18-Nov-2024**	**27-Nov-2024**	17-May-2025	✓	**27-Nov-2024**	06-Jan-2025	✓

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	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	28	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	25	**16.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	26	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
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 Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

QUALITY CONTROL REPORT

Work Order	: **EP2417725**	Page	: 1 of 14
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 22-Nov-2024
Order number	: ----	Date Analysis Commenced	: 27-Nov-2024
C-O-C number	: ----	Issue Date	: 10-Dec-2024
Sampler	: SP/ECG		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 36		
No. of samples analysed	: 7		

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, unless the sampling was conducted by ALS. 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
David Viner	SENIOR LAB TECH	Perth Organics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6220336)									
EP2417725-001	SB041/MW02_0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	16	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EP2417517-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	44	44	0.0	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	16	16	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	93	94	0.0	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	105	111	5.1	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	638	646	1.2	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6236948)									
EP2417996-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	12	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6236948) - continued									
EP2417996-002	Anonymous	EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EP2417725-033	SB001/MW01_9.9-10.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 6236800)									
EP2417725-020	SB041/MW02_23.9-24.0	EA002: pH Value	----	0.1	pH Unit	9.4	9.3	1.4	0% - 20%
EP2417891-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.5	8.5	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6220101)									
EP2417553-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	<1.0	<1.0	0.0	No Limit
EP2417725-037	QC507	EA055: Moisture Content	----	0.1 (1.0)*	%	<1.0	<1.0	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6220332)									
EP2417517-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6236949)									
EP2417996-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2417725-033	SB001/MW01_9.9-10.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6219931)									
EP2417725-001	SB041/MW02_0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6219931) - continued									
EP2417725-001	SB041/MW02_0-0.1	EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6219928)									
EP2417553-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP2417725-022	SB001/MW01_0.0-0.05	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6219930)									
EP2417725-022	SB001/MW01_0.0-0.05	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2417725-001	SB041/MW02_0-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6229844)									
EP2417785-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP2417785-010	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6229845)									
EP2417785-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2417785-010	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6219928)									
EP2417553-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP2417725-022	SB001/MW01_0.0-0.05	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6219930)									
EP2417725-022	SB001/MW01_0.0-0.05	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6219930) - continued									
EP2417725-001	SB041/MW02_0-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6229844)									
EP2417785-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP2417785-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6229845)									
EP2417785-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP2417785-010	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 6219928)									
EP2417553-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP2417725-022	SB001/MW01_0.0-0.05	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 6229844)									
EP2417785-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP2417785-010	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 6229844) - continued									
EP2417785-010	Anonymous	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6218819)									
EP2417725-001	SB041/MW02_0-0.1	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6218819)									
EP2417725-001	SB041/MW02_0-0.1	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6218819)									
EP2417725-001	SB041/MW02_0-0.1	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6218819) - continued									
EP2417725-001	SB041/MW02_0-0.1	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6218819)									
EP2417725-001	SB041/MW02_0-0.1	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6218819)									
EP2417725-001	SB041/MW02_0-0.1	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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 (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6220336)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	77.39 mg/kg	88.1	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.93 mg/kg	93.3	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	18.67 mg/kg	91.8	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	46.13 mg/kg	93.5	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	58.42 mg/kg	91.2	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	14.48 mg/kg	90.8	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	190.4 mg/kg	92.2	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6236948)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	77.39 mg/kg	100	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.93 mg/kg	75.1	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	18.67 mg/kg	93.2	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	46.13 mg/kg	96.0	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	58.42 mg/kg	92.3	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	14.48 mg/kg	95.3	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	190.4 mg/kg	92.1	70.0	130
EA002: pH 1:5 (Soils) (QCLot: 6236800)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	99.2	98.6	102
				----	7 pH Unit	99.7	98.6	102
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6220332)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.115 mg/kg	74.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6236949)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.115 mg/kg	71.3	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 6219931)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	# 119	46.0	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	116	53.0	133
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	112	45.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	110	46.0	122
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	# 118	47.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	40.0	118
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	119	47.0	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068A: Organochlorine Pesticides (OC) (QCLot: 6219931) - continued								
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	119	41.0	119
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	118	43.0	119
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	113	41.0	131
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	119	41.0	119
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	123	41.0	127
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	119	44.0	122
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	62.3	37.0	129
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	126	41.0	127
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	# 127	42.0	122
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	31.2	117
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	68.4	38.0	120
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	59.3	31.4	125
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	# 140	31.2	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	45.8	24.7	125
EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6219928)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	35 mg/kg	95.4	66.0	122
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6219930)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	1666 mg/kg	92.0	70.0	111
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2937 mg/kg	82.0	71.9	109
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	477 mg/kg	77.7	63.8	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6229844)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	35 mg/kg	113	66.0	122
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6229845)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	1666 mg/kg	92.3	70.0	111
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2937 mg/kg	85.7	71.9	109
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	477 mg/kg	73.5	63.8	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6219928)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	93.9	66.0	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6219930)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6219930) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	2315 mg/kg	90.4	72.8	110
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	2594 mg/kg	77.0	67.8	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	157 mg/kg	76.2	50.3	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6229844)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	111	66.0	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6229845)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	2315 mg/kg	90.6	72.8	110
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	2594 mg/kg	81.7	67.8	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	157 mg/kg	71.7	50.3	123
EP080: BTEXN (QCLot: 6219928)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	106	72.0	122
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	101	75.0	119
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	99.0	73.0	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	98.3	74.0	122
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	101	75.0	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	91.8	64.0	126
EP080: BTEXN (QCLot: 6229844)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	109	72.0	122
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	103	75.0	119
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	108	73.0	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	108	74.0	122
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	108	75.0	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	97.5	64.0	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6218819)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	0.00114 mg/kg	93.0	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	93.6	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	87.7	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	96.6	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	87.5	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	0.0012 mg/kg	98.3	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	95.8	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6218819)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6218819) - continued								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	81.2	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.0	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.6	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.6	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	103	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6218819)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	110	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	93.4	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	98.1	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	108	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.0	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6218819)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	90.6	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	100	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	91.7	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	91.2	54.8	124
EP231P: PFAS Sums (QCLot: 6218819)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

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**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6220336)							
EP2417517-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.4	70.0	130
		EG005T: Cadmium	7440-43-9	12.5 mg/kg	100.0	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.9	70.0	130
		EG005T: Copper	7440-50-8	50 mg/kg	104	70.0	130
		EG005T: Lead	7439-92-1	50 mg/kg	95.6	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	100	70.0	130
		EG005T: Zinc	7440-66-6	50 mg/kg	# Not Determined	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6236948)							
EP2417725-033	SB001/MW01_9.9-10.0	EG005T: Arsenic	7440-38-2	50 mg/kg	115	70.0	130
		EG005T: Cadmium	7440-43-9	12.5 mg/kg	86.8	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	91.6	70.0	130
		EG005T: Copper	7440-50-8	50 mg/kg	112	70.0	130
		EG005T: Lead	7439-92-1	50 mg/kg	93.6	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	89.1	70.0	130
		EG005T: Zinc	7440-66-6	50 mg/kg	83.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6220332)							
EP2417517-001	Anonymous	EG035T: Mercury	7439-97-6	1 mg/kg	82.9	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6236949)							
EP2417725-033	SB001/MW01_9.9-10.0	EG035T: Mercury	7439-97-6	1 mg/kg	75.6	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 6219931)							
EP2417725-022	SB001/MW01_0.0-0.05	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	79.6	57.9	124
		EP068: Heptachlor	76-44-8	0.5 mg/kg	65.8	57.4	135
		EP068: Aldrin	309-00-2	0.5 mg/kg	90.8	59.6	125
		EP068: Dieldrin	60-57-1	0.5 mg/kg	99.1	62.2	131
		EP068: Endrin	72-20-8	0.5 mg/kg	79.5	55.8	138
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	# 17.5	50.5	145
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6219928)							
EP2417553-002	Anonymous	EP080: C6 - C9 Fraction	----	24 mg/kg	77.3	69.1	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6219930)							
EP2417553-002	Anonymous	EP071: C10 - C14 Fraction	----	1666 mg/kg	89.7	64.7	126
		EP071: C15 - C28 Fraction	----	2937 mg/kg	79.3	61.7	124
		EP071: C29 - C36 Fraction	----	477 mg/kg	# Not Determined	64.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6229844)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6229844) - continued							
EP2417785-001	Anonymous	EP080: C6 - C9 Fraction	----	24 mg/kg	101	69.1	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6229845)							
EP2417785-001	Anonymous	EP071: C10 - C14 Fraction	----	1666 mg/kg	92.5	64.7	126
		EP071: C15 - C28 Fraction	----	2937 mg/kg	86.3	61.7	124
		EP071: C29 - C36 Fraction	----	477 mg/kg	73.6	64.6	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6219928)							
EP2417553-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	29 mg/kg	71.3	69.1	135
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6219930)							
EP2417553-002	Anonymous	EP071: >C10 - C16 Fraction	----	2315 mg/kg	88.0	64.7	126
		EP071: >C16 - C34 Fraction	----	2594 mg/kg	72.6	61.7	124
		EP071: >C34 - C40 Fraction	----	157 mg/kg	# Not Determined	64.6	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6229844)							
EP2417785-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	29 mg/kg	99.4	69.1	135
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6229845)							
EP2417785-001	Anonymous	EP071: >C10 - C16 Fraction	----	2315 mg/kg	90.8	64.7	126
		EP071: >C16 - C34 Fraction	----	2594 mg/kg	82.2	61.7	124
		EP071: >C34 - C40 Fraction	----	157 mg/kg	72.8	64.6	131
EP080: BTEXN (QCLot: 6219928)							
EP2417553-002	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	107	76.4	118
		EP080: Toluene	108-88-3	2 mg/kg	98.2	67.4	112
EP080: BTEXN (QCLot: 6229844)							
EP2417785-001	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	109	76.4	118
		EP080: Toluene	108-88-3	2 mg/kg	105	67.4	112
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6218819)							
EP2417725-022	SB001/MW01_0.0-0.05	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00114 mg/kg	90.8	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	95.0	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	92.3	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	87.7	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	97.5	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	87.1	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0012 mg/kg	98.7	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	94.6	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6218819)							
EP2417725-022	SB001/MW01_0.0-0.05	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	99.8	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	93.6	69.0	132

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6218819) - continued							
EP2417725-022	SB001/MW01_0.0-0.05	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	88.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	87.2	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	86.0	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	95.6	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	77.6	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	95.6	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	123	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	104	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	104	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6218819)							
EP2417725-022	SB001/MW01_0.0-0.05	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	103	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	108	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	100	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	91.7	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	113	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	96.0	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	91.2	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6218819)							
EP2417725-022	SB001/MW01_0.0-0.05	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	97.9	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	95.3	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	89.6	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	65.4	60.0	130

CERTIFICATE OF ANALYSIS

Work Order	: **EP2417725**	Page	: 1 of 10
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 22-Nov-2024 13:00
Order number	: ----	Date Analysis Commenced	: 27-Nov-2024
C-O-C number	: ----	Issue Date	: 10-Dec-2024 18:02
Sampler	: SP/ECG		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 36		
No. of samples analysed	: 7		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

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- 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*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
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John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP068: Poor matrix spike recovery due to suspected matrix interferences, confirmed by re-analysis.
- EP068: High LCS recovery deemed acceptable as all associated analyte results are less than LOR.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB041/MW02_0-0.1	SB041/MW02_14.9-15.0	SB041/MW02_23.9-24.0	SB001/MW01_0.0-0.05	SB001/MW01_2.9-3.0
				Sampling date / time	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00	21-Nov-2024 00:00	21-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417725-001	EP2417725-017	EP2417725-020	EP2417725-022	EP2417725-026
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**9.2**	**9.4**	**9.4**	**8.9**	**9.5**
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**----**	**----**	**11.5**	**1.2**	**6.3**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**15**	**6**	**6**	**4**	**9**
Copper	7440-50-8	5	mg/kg		<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg		<5	<5	<5	**10**	<5
Nickel	7440-02-0	2	mg/kg		<2	<2	<2	**3**	<2
Zinc	7440-66-6	5	mg/kg		<5	<5	<5	**13**	<5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	<0.05	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB041/MW02_0-0.1	SB041/MW02_14.9-15.0	SB041/MW02_23.9-24.0	SB001/MW01_0.0-0.05	SB001/MW01_2.9-3.0
				Sampling date / time	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00	21-Nov-2024 00:00	21-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417725-001	EP2417725-017	EP2417725-020	EP2417725-022	EP2417725-026
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	<0.05	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	<0.2	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	<0.05	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	<0.05	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB041/MW02_0-0.1	SB041/MW02_14.9-15.0	SB041/MW02_23.9-24.0	SB001/MW01_0.0-0.05	SB001/MW01_2.9-3.0
			Sampling date / time	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00	21-Nov-2024 00:00	21-Nov-2024 00:00
Compound	CAS Number	LOR	Unit	EP2417725-001	EP2417725-017	EP2417725-020	EP2417725-022	EP2417725-026
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	<0.0002	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	----	----	**0.0004**	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	<0.0002	----
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0005	mg/kg	<0.0005	----	----	<0.0005	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	<0.0002	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB041/MW02_0-0.1	SB041/MW02_14.9-15.0	SB041/MW02_23.9-24.0	SB001/MW01_0.0-0.05	SB001/MW01_2.9-3.0
				Sampling date / time	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00	21-Nov-2024 00:00	21-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417725-001	EP2417725-017	EP2417725-020	EP2417725-022	EP2417725-026
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	----	<0.0005	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	----	<0.0005	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	<0.0005	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	<0.0005	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	<0.0002	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<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	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB041/MW02_0-0.1	SB041/MW02_14.9-15.0	SB041/MW02_23.9-24.0	SB001/MW01_0.0-0.05	SB001/MW01_2.9-3.0
				Sampling date / time	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00	21-Nov-2024 00:00	21-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417725-001	EP2417725-017	EP2417725-020	EP2417725-022	EP2417725-026
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	<0.0005	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	----	----	**0.0004**	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	----	----	**0.0004**	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	----	----	**0.0004**	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**79.5**	----	----	**79.4**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**71.0**	----	----	**76.1**	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**95.0**	**108**	**101**	**100**	**92.3**
Toluene-D8	2037-26-5	0.2	%		**96.5**	**98.6**	**95.0**	**96.7**	**87.9**
4-Bromofluorobenzene	460-00-4	0.2	%		**95.5**	**105**	**94.0**	**100**	**90.6**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**102**	----	----	**101**	----
13C8-PFOA	----	0.0002	%		**101**	----	----	**102**	----

Analytical Results

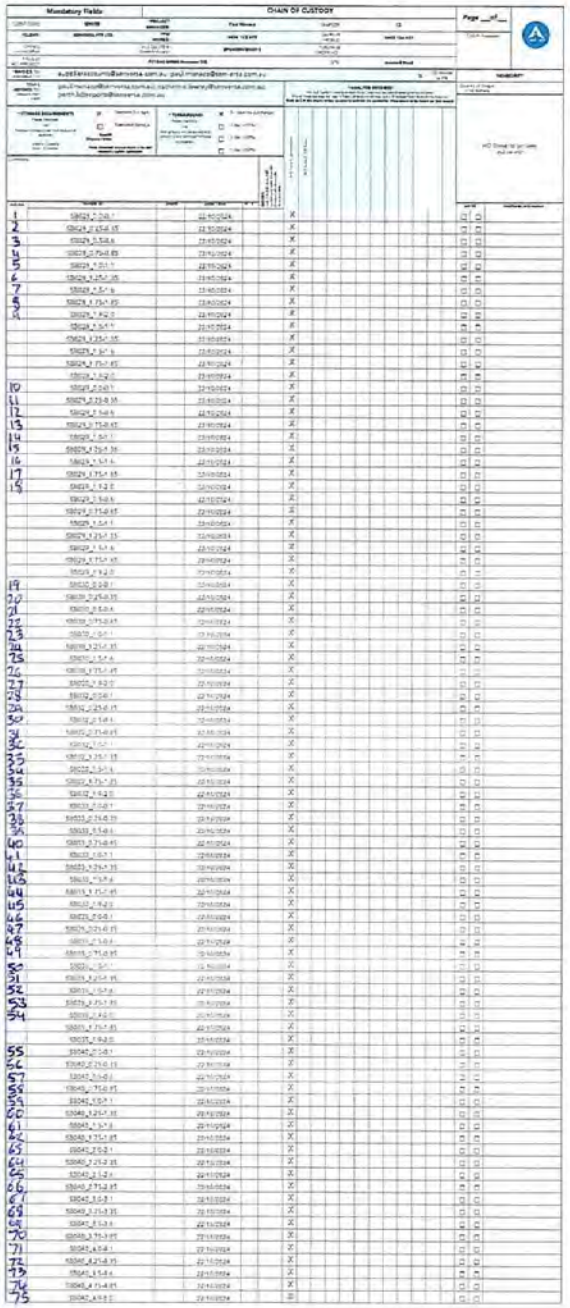
Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB001/MW01_9.9-10.0	QC507	----	----	----
				Sampling date / time	21-Nov-2024 00:00	18-Nov-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2417725-033	EP2417725-037	--------	--------	--------
					Result	Result	----	----	----
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**9.6**	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		----	<1.0	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**6**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		**9**	----	----	----	----
Copper	7440-50-8	5	mg/kg		<5	----	----	----	----
Lead	7439-92-1	5	mg/kg		<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg		<2	----	----	----	----
Zinc	7440-66-6	5	mg/kg		<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB001/MW01_9.9-10.0	QC507	----	----	----
				Sampling date / time	21-Nov-2024 00:00	18-Nov-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2417725-033	EP2417725-037	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	**----**	**----**	**----**	**----**
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	**----**	**----**	**----**
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	**----**	**----**	**----**
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
Naphthalene	91-20-3	1	mg/kg		<1	<1	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**107**	**97.7**	**----**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**94.8**	**95.7**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**98.4**	**96.9**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	53	152
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	28	152
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	132
Toluene-D8	2037-26-5	66	125
4-Bromofluorobenzene	460-00-4	60	124
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131



Rec EG 24/10 @ 845

Environmental Division
Perth
Work Order Reference
EP2415937

Telephone : +61-8-9406 1301

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2415937**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 4
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: CL		

Dates

Date Samples Received	: 24-Oct-2024 08:45	Issue Date	: 29-Oct-2024
Client Requested Due Date	: 08-Nov-2024	Scheduled Reporting Date	: **08-Nov-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 8	Temperature	: 13.4 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 81 / 81

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA003 pH field/fox
EP2415937-001	22-Oct-2024 00:00	SB028_0.0-0.1	✓
EP2415937-002	22-Oct-2024 00:00	SB028_0.25-0.35	✓
EP2415937-003	22-Oct-2024 00:00	SB028_0.5-0.6	✓
EP2415937-004	22-Oct-2024 00:00	SB028_0.75-0.85	✓
EP2415937-005	22-Oct-2024 00:00	SB028_1.0-1.1	✓
EP2415937-006	22-Oct-2024 00:00	SB028_1.25-1.35	✓
EP2415937-007	22-Oct-2024 00:00	SB028_1.5-1.6	✓
EP2415937-008	22-Oct-2024 00:00	SB028_1.75-1.85	✓
EP2415937-009	22-Oct-2024 00:00	SB028_1.9-2.0	✓
EP2415937-010	22-Oct-2024 00:00	SB029_0.0-0.1	✓
EP2415937-011	22-Oct-2024 00:00	SB029_0.25-0.35	✓
EP2415937-012	22-Oct-2024 00:00	SB029_0.5-0.6	✓
EP2415937-013	22-Oct-2024 00:00	SB029_0.75-0.85	✓
EP2415937-014	22-Oct-2024 00:00	SB029_1.0-1.1	✓
EP2415937-015	22-Oct-2024 00:00	SB029_1.25-1.35	✓
EP2415937-016	22-Oct-2024 00:00	SB029_1.5-1.6	✓
EP2415937-017	22-Oct-2024 00:00	SB029_1.75-1.85	✓
EP2415937-018	22-Oct-2024 00:00	SB029_1.9-2.0	✓
EP2415937-019	22-Oct-2024 00:00	SB030_0.0-0.1	✓
EP2415937-020	22-Oct-2024 00:00	SB030_0.25-0.35	✓
EP2415937-021	22-Oct-2024 00:00	SB030_0.5-0.6	✓
EP2415937-022	22-Oct-2024 00:00	SB030_0.75-0.85	✓
EP2415937-023	22-Oct-2024 00:00	SB030_1.0-1.1	✓
EP2415937-024	22-Oct-2024 00:00	SB030_1.25-1.35	✓
EP2415937-025	22-Oct-2024 00:00	SB030_1.5-1.6	✓
EP2415937-026	22-Oct-2024 00:00	SB030_1.75-1.85	✓
EP2415937-027	22-Oct-2024 00:00	SB030_1.9-2.0	✓
EP2415937-028	22-Oct-2024 00:00	SB032_0.0-0.1	✓
EP2415937-029	22-Oct-2024 00:00	SB032_0.25-0.35	✓
EP2415937-030	22-Oct-2024 00:00	SB032_0.5-0.6	✓
EP2415937-031	22-Oct-2024 00:00	SB032_0.75-0.85	✓
EP2415937-032	22-Oct-2024 00:00	SB032_1.0-1.1	✓
EP2415937-033	22-Oct-2024 00:00	SB032_1.25-1.35	✓
EP2415937-034	22-Oct-2024 00:00	SB032_1.5-1.6	✓
EP2415937-035	22-Oct-2024 00:00	SB032_1.75-1.85	✓

			SOIL - EA003 pH field/fox
EP2415937-036	22-Oct-2024 00:00	SB032_1.9-2.0	✓
EP2415937-037	22-Oct-2024 00:00	SB033_0.0-0.1	✓
EP2415937-038	22-Oct-2024 00:00	SB033_0.25-0.35	✓
EP2415937-039	22-Oct-2024 00:00	SB033_0.5-0.6	✓
EP2415937-040	22-Oct-2024 00:00	SB033_0.75-0.85	✓
EP2415937-041	22-Oct-2024 00:00	SB033_1.0-1.1	✓
EP2415937-042	22-Oct-2024 00:00	SB033_1.25-1.35	✓
EP2415937-043	22-Oct-2024 00:00	SB033_1.5-1.6	✓
EP2415937-044	22-Oct-2024 00:00	SB033_1.75-1.85	✓
EP2415937-045	22-Oct-2024 00:00	SB033_1.9-2.0	✓
EP2415937-046	22-Oct-2024 00:00	SB035_0.0-0.1	✓
EP2415937-047	22-Oct-2024 00:00	SB035_0.25-0.35	✓
EP2415937-048	22-Oct-2024 00:00	SB035_0.5-0.6	✓
EP2415937-049	22-Oct-2024 00:00	SB035_0.75-0.85	✓
EP2415937-050	22-Oct-2024 00:00	SB035_1.0-1.1	✓
EP2415937-051	22-Oct-2024 00:00	SB035_1.25-1.35	✓
EP2415937-052	22-Oct-2024 00:00	SB035_1.5-1.6	✓
EP2415937-053	22-Oct-2024 00:00	SB035_1.75-1.85	✓
EP2415937-054	22-Oct-2024 00:00	SB035_1.9-2.0	✓
EP2415937-055	22-Oct-2024 00:00	SB040_0.0-0.1	✓
EP2415937-056	22-Oct-2024 00:00	SB040_0.25-0.35	✓
EP2415937-057	22-Oct-2024 00:00	SB040_0.5-0.6	✓
EP2415937-058	22-Oct-2024 00:00	SB040_0.75-0.85	✓
EP2415937-059	22-Oct-2024 00:00	SB040_1.0-1.1	✓
EP2415937-060	22-Oct-2024 00:00	SB040_1.25-1.35	✓
EP2415937-061	22-Oct-2024 00:00	SB040_1.5-1.6	✓
EP2415937-062	22-Oct-2024 00:00	SB040_1.75-1.85	✓
EP2415937-063	22-Oct-2024 00:00	SB040_2.0-2.1	✓
EP2415937-064	22-Oct-2024 00:00	SB040_2.25-2.35	✓
EP2415937-065	22-Oct-2024 00:00	SB040_2.5-2.6	✓
EP2415937-066	22-Oct-2024 00:00	SB040_2.75-2.85	✓
EP2415937-067	22-Oct-2024 00:00	SB040_3.0-3.1	✓
EP2415937-068	22-Oct-2024 00:00	SB040_3.25-3.35	✓
EP2415937-069	22-Oct-2024 00:00	SB040_3.5-3.6	✓
EP2415937-070	22-Oct-2024 00:00	SB040_3.75-3.85	✓
EP2415937-071	22-Oct-2024 00:00	SB040_4.0-4.1	✓
EP2415937-072	22-Oct-2024 00:00	SB040_4.25-4.35	✓
EP2415937-073	22-Oct-2024 00:00	SB040_4.5-4.6	✓
EP2415937-074	22-Oct-2024 00:00	SB040_4.75-4.85	✓
EP2415937-075	22-Oct-2024 00:00	SB040_4.9-5.0	✓
EP2415937-076	22-Oct-2024 00:00	QC107	✓

			SOIL - EA003 pH field/fox
EP2415937-077	22-Oct-2024 00:00	QC108	✓
EP2415937-078	22-Oct-2024 00:00	QC109	✓
EP2415937-079	22-Oct-2024 00:00	QC110	✓
EP2415937-080	22-Oct-2024 00:00	QC111	✓
EP2415937-081	22-Oct-2024 00:00	QC112	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2415937**	Page	: 1 of 5
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024
Site	: Anketell Road	Issue Date	: 08-Nov-2024
Sampler	: CL	No. of samples received	: 81
Order number	: ----	No. of samples analysed	: 81

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.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, 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.**

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
EA003 :pH (field/fox)							
Snap Lock Bag - frozen on receipt at ALS (EA003)							

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
EA003 :pH (field/fox) - Continued							
SB028_0.0-0.1, SB028_0.25-0.35, SB028_0.5-0.6, SB028_0.75-0.85, SB028_1.0-1.1, SB028_1.25-1.35, SB028_1.5-1.6, SB028_1.75-1.85, SB028_1.9-2.0, SB029_0.0-0.1, SB029_0.25-0.35, SB029_0.5-0.6, SB029_0.75-0.85, SB029_1.0-1.1, SB029_1.25-1.35, QC107, QC108, SB029_1.5-1.6, SB029_1.75-1.85, SB029_1.9-2.0, SB030_0.0-0.1, SB030_0.25-0.35, SB030_0.5-0.6, SB030_0.75-0.85, SB030_1.0-1.1, SB030_1.25-1.35, SB030_1.5-1.6, SB030_1.75-1.85, SB030_1.9-2.0, SB032_0.0-0.1, SB032_0.25-0.35, SB032_0.5-0.6, SB032_1.0-1.1, SB032_0.75-0.85, SB032_1.25-1.35, SB032_1.5-1.6, SB032_1.75-1.85, SB032_1.9-2.0, SB033_0.0-0.1, SB033_0.25-0.35, SB033_0.5-0.6, SB033_0.75-0.85, SB033_1.0-1.1, SB033_1.25-1.35, SB033_1.5-1.6, SB033_1.75-1.85, SB033_1.9-2.0, SB035_0.0-0.1, QC109, QC110, SB035_0.25-0.35, SB035_0.5-0.6, SB035_0.75-0.85, SB035_1.0-1.1, SB035_1.25-1.35, SB035_1.5-1.6, SB035_1.75-1.85, SB035_1.9-2.0, SB040_0.0-0.1, SB040_0.25-0.35, SB040_0.5-0.6, SB040_0.75-0.85, SB040_1.0-1.1, SB040_1.25-1.35, SB040_1.5-1.6, QC111, QC112, SB040_1.75-1.85, SB040_2.0-2.1, SB040_2.25-2.35, SB040_2.5-2.6, SB040_2.75-2.85, SB040_3.0-3.1, SB040_3.25-3.35, SB040_3.5-3.6, SB040_3.75-3.85, SB040_4.0-4.1, SB040_4.25-4.35, SB040_4.5-4.6, SB040_4.75-4.85, SB040_4.9-5.0	**22-Oct-2024**	**06-Nov-2024**	18-Jul-2027	✓	**06-Nov-2024**	04-Feb-2025	✓

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)							
pH field/fox	EA003	9	81	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH field/fox	EA003	SOIL	In house: Referenced to Ahern et al 1998 - determined on a 1:5 soil/water extract designed to simulate field measured pH and pH after the extract has been oxidised with peroxide.

Preparation Methods	Method	Matrix	Method Descriptions
Drying only	EN020D	SOIL	In house

QUALITY CONTROL REPORT

Work Order	: **EP2415937**	Page	: 1 of 4
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024
Order number	: ----	Date Analysis Commenced	: 06-Nov-2024
C-O-C number	: ----	Issue Date	: 08-Nov-2024
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 81		
No. of samples analysed	: 81		

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, unless the sampling was conducted by ALS. 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*
Daniel Fisher	Inorganics Analyst	Perth ASS, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA003 :pH (field/fox) (QC Lot: 6172126)									
EP2415937-001	SB028_0.0-0.1	EA003: pH (F)	----	0.1	pH Unit	6.5	6.3	3.4	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	3.8	3.7	2.7	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	2	2	0.0	No Limit
EP2415937-010	SB029_0.0-0.1	EA003: pH (F)	----	0.1	pH Unit	7.0	7.1	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	3.8	3.9	0.0	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	2	2	0.0	No Limit
EA003 :pH (field/fox) (QC Lot: 6172127)									
EP2415937-021	SB030_0.5-0.6	EA003: pH (F)	----	0.1	pH Unit	7.9	8.0	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	5.9	5.9	0.0	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	2	2	0.0	No Limit
EP2415937-030	SB032_0.5-0.6	EA003: pH (F)	----	0.1	pH Unit	8.5	8.5	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	4.9	4.9	0.0	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	1	1	0.0	No Limit
EA003 :pH (field/fox) (QC Lot: 6172128)									
EP2415937-041	SB033_1.0-1.1	EA003: pH (F)	----	0.1	pH Unit	8.4	8.4	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	4.8	4.7	0.0	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	1	1	0.0	No Limit
EP2415937-050	SB035_1.0-1.1	EA003: pH (F)	----	0.1	pH Unit	6.3	6.3	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	3.6	3.6	0.0	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	1	1	0.0	No Limit
EA003 :pH (field/fox) (QC Lot: 6172129)									
EP2415937-061	SB040_1.5-1.6	EA003: pH (F)	----	0.1	pH Unit	9.0	9.0	0.0	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA003 :pH (field/fox) (QC Lot: 6172129) - continued									
EP2415937-061	SB040_1.5-1.6	EA003: pH (Fox)	----	0.1	pH Unit	6.3	6.3	0.0	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	1	1	0.0	No Limit
EP2415937-070	SB040_3.75-3.85	EA003: pH (F)	----	0.1	pH Unit	8.8	8.8	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	5.6	5.4	4.7	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	1	1	0.0	No Limit
EA003 :pH (field/fox) (QC Lot: 6172130)									
EP2415937-081	QC112	EA003: pH (F)	----	0.1	pH Unit	8.4	8.4	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	5.3	5.3	0.0	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	1	1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Work Order	: **EP2415937**	Page	: 1 of 19
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 24-Oct-2024 08:45
Order number	: ----	Date Analysis Commenced	: 06-Nov-2024
C-O-C number	: ----	Issue Date	: 08-Nov-2024 14:32
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 81		
No. of samples analysed	: 81		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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*
Daniel Fisher	Inorganics Analyst	Perth ASS, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- ASS: EA003 (NATA Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB028_0.0-0.1	SB028_0.25-0.35	SB028_0.5-0.6	SB028_0.75-0.85	SB028_1.0-1.1
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-001	EP2415937-002	EP2415937-003	EP2415937-004	EP2415937-005
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**6.5**	**6.4**	**6.5**	**6.5**	**6.3**
pH (Fox)	----	0.1	pH Unit	**3.8**	**4.2**	**4.6**	**4.5**	**4.7**
Reaction Rate	----	1	Reaction Unit	**2**	**2**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB028_1.25-1.35	SB028_1.5-1.6	SB028_1.75-1.85	SB028_1.9-2.0	SB029_0.0-0.1
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-006	EP2415937-007	EP2415937-008	EP2415937-009	EP2415937-010
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.1**	**6.8**	**7.2**	**6.9**	**7.0**
pH (Fox)	----	0.1	pH Unit	**4.7**	**4.7**	**4.6**	**4.6**	**3.8**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**1**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB029_0.25-0.35	SB029_0.5-0.6	SB029_0.75-0.85	SB029_1.0-1.1	SB029_1.25-1.35
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EP2415937-011	EP2415937-012	EP2415937-013	EP2415937-014	EP2415937-015
					Result	Result	Result	Result	Result
EA003 :pH (field/fox)									
pH (F)	----	0.1	pH Unit		**6.2**	**6.3**	**6.6**	**6.6**	**6.4**
pH (Fox)	----	0.1	pH Unit		**4.7**	**4.8**	**4.9**	**4.8**	**4.7**
Reaction Rate	----	1	Reaction Unit		**2**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB029_1.5-1.6	SB029_1.75-1.85	SB029_1.9-2.0	SB030_0.0-0.1	SB030_0.25-0.35
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-016	EP2415937-017	EP2415937-018	EP2415937-019	EP2415937-020
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.3**	**6.4**	**6.7**	**7.9**	**8.0**
pH (Fox)	----	0.1	pH Unit	**5.3**	**4.6**	**4.7**	**5.8**	**6.1**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**2**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB030_0.5-0.6	SB030_0.75-0.85	SB030_1.0-1.1	SB030_1.25-1.35	SB030_1.5-1.6
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-021	EP2415937-022	EP2415937-023	EP2415937-024	EP2415937-025
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.9**	**8.2**	**7.7**	**7.3**	**7.8**
pH (Fox)	----	0.1	pH Unit	**5.9**	**5.1**	**4.8**	**5.2**	**5.0**
Reaction Rate	----	1	Reaction Unit	**2**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB030_1.75-1.85	SB030_1.9-2.0	SB032_0.0-0.1	SB032_0.25-0.35	SB032_0.5-0.6
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-026	EP2415937-027	EP2415937-028	EP2415937-029	EP2415937-030
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.6**	**7.8**	**8.2**	**8.2**	**8.5**
pH (Fox)	----	0.1	pH Unit	**4.5**	**4.2**	**5.8**	**5.5**	**4.9**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**2**	**2**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB032_0.75-0.85	SB032_1.0-1.1	SB032_1.25-1.35	SB032_1.5-1.6	SB032_1.75-1.85
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-031	EP2415937-032	EP2415937-033	EP2415937-034	EP2415937-035
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**8.3**	**8.4**	**8.0**	**7.7**	**7.9**
pH (Fox)	----	0.1	pH Unit	**5.0**	**5.0**	**4.8**	**4.7**	**4.6**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB032_1.9-2.0	SB033_0.0-0.1	SB033_0.25-0.35	SB033_0.5-0.6	SB033_0.75-0.85
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-036	EP2415937-037	EP2415937-038	EP2415937-039	EP2415937-040
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.4**	**8.6**	**8.8**	**8.6**	**8.2**
pH (Fox)	----	0.1	pH Unit	**4.6**	**6.1**	**6.1**	**5.3**	**4.8**
Reaction Rate	----	1	Reaction Unit	**1**	**2**	**2**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB033_1.0-1.1	SB033_1.25-1.35	SB033_1.5-1.6	SB033_1.75-1.85	SB033_1.9-2.0
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-041	EP2415937-042	EP2415937-043	EP2415937-044	EP2415937-045
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**8.4**	**8.1**	**7.8**	**7.4**	**7.4**
pH (Fox)	----	0.1	pH Unit	**4.8**	**4.6**	**4.6**	**4.5**	**4.5**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB035_0.0-0.1	SB035_0.25-0.35	SB035_0.5-0.6	SB035_0.75-0.85	SB035_1.0-1.1
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-046	EP2415937-047	EP2415937-048	EP2415937-049	EP2415937-050
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.0**	**6.8**	**6.2**	**6.2**	**6.3**
pH (Fox)	----	0.1	pH Unit	**4.0**	**3.7**	**3.4**	**3.5**	**3.6**
Reaction Rate	----	1	Reaction Unit	**2**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB035_1.25-1.35	SB035_1.5-1.6	SB035_1.75-1.85	SB035_1.9-2.0	SB040_0.0-0.1
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-051	EP2415937-052	EP2415937-053	EP2415937-054	EP2415937-055
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**5.8**	**6.1**	**7.2**	**6.0**	**8.6**
pH (Fox)	----	0.1	pH Unit	**3.7**	**4.1**	**4.2**	**3.6**	**6.4**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**1**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB040_0.25-0.35	SB040_0.5-0.6	SB040_0.75-0.85	SB040_1.0-1.1	SB040_1.25-1.35
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-056	EP2415937-057	EP2415937-058	EP2415937-059	EP2415937-060
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**8.9**	**8.8**	**8.9**	**8.6**	**8.9**
pH (Fox)	----	0.1	pH Unit	**6.2**	**5.8**	**5.9**	**5.4**	**5.9**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB040_1.5-1.6	SB040_1.75-1.85	SB040_2.0-2.1	SB040_2.25-2.35	SB040_2.5-2.6
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-061	EP2415937-062	EP2415937-063	EP2415937-064	EP2415937-065
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**9.0**	**8.9**	**8.4**	**8.3**	**8.5**
pH (Fox)	----	0.1	pH Unit	**6.3**	**6.6**	**5.4**	**5.3**	**5.5**
Reaction Rate	----	1	Reaction Unit	**1**	**2**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB040_2.75-2.85	SB040_3.0-3.1	SB040_3.25-3.35	SB040_3.5-3.6	SB040_3.75-3.85
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-066	EP2415937-067	EP2415937-068	EP2415937-069	EP2415937-070
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**8.4**	**9.0**	**8.3**	**8.0**	**8.8**
pH (Fox)	----	0.1	pH Unit	**5.2**	**5.7**	**5.1**	**5.1**	**5.6**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB040_4.0-4.1	SB040_4.25-4.35	SB040_4.5-4.6	SB040_4.75-4.85	SB040_4.9-5.0
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-071	EP2415937-072	EP2415937-073	EP2415937-074	EP2415937-075
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.8**	**7.7**	**7.4**	**8.3**	**7.8**
pH (Fox)	----	0.1	pH Unit	**5.2**	**5.2**	**5.0**	**5.1**	**5.0**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC107	QC108	QC109	QC110	QC111
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415937-076	EP2415937-077	EP2415937-078	EP2415937-079	EP2415937-080
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.0**	**6.9**	**6.6**	**8.3**	**8.6**
pH (Fox)	----	0.1	pH Unit	**3.9**	**4.2**	**4.4**	**5.8**	**5.3**
Reaction Rate	----	1	Reaction Unit	**2**	**1**	**1**	**2**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC112	----	----	----	----
				Sampling date / time	22-Oct-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2415937-081	--------	--------	--------	--------
					Result	----	----	----	----
EA003 :pH (field/fox)									
pH (F)	----	0.1	pH Unit		**8.4**	**----**	**----**	**----**	**----**
pH (Fox)	----	0.1	pH Unit		**5.3**	**----**	**----**	**----**	**----**
Reaction Rate	----	1	Reaction Unit		**1**	**----**	**----**	**----**	**----**

Mandatory Fields		CHAIN OF CUSTODY				Page ___of___
CLIENT CODE:	SENVER	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	CL	
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0424 152 590	SAMPLER MOBILE:	0408 156 421	CoC # (if applicable)
OFFICE: (Invoiced Office)		ALS QUOTE # (Client's Ref. if Blank)	EP24SENVER0010	PURCHASE ORDER NO:		
PROJECT NO./PROJECT:		P21560 MRWA Kwinana DSI		SITE:	Ackstell Road	
*INVOICE TO: (Client default if blank)	supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au				CC Invoice to PM	BIOSECURITY
*EMAIL REPORTS TO: (default to PM if blank)	paul.monaco@senversa.com.au; catherine.lawrey@senversa.com.au; perth.labreports@senversa.com.au			*ANALYSIS REQUIRED (Incl. ALS Quote No. and/or analyses to be added must be listed to attract correct pricing) Where filtering is required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required). Mark an X in the boxes below analysis to indicate the parameter listed above to be tested on ALL samples.		Country of Origin: (Post Australia)

* STORAGE REQUIREMENTS (Please check box → Standard Storage / Extended Storage. Standard Storage time from receipt of samples: Water - 3 weeks; Soils - 2 months. Specify Disposal Date: Note: Extended storage incurs a fee and requires a signed agreement.)	* TURNAROUND (Please check box → 5+ days (no surcharge) / 3 day (+ 15%) / 2 day (+ 20%) / 1 day (+ 50%). Not all tests can be expedited (contact Client Services for more information))	Comments	WO Sticker to go here (ALS use only)

ALS USE Only	Sample ID	Depth	Date/Time	Matrix	# of containers	ALS Suite 1 - pH/Alkalinity	ALS Suite 2 - Cd/Soils	LAB QC (if applicable)	ADDITIONAL INFORMATION (Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.)
1	SB027_0.0-0.1		21/10/2024			X		☐ ☐	
2	SB027_0.25-0.35		21/10/2024			X		☐ ☐	
3	SB027_0.5-0.6		21/10/2024			X		☐ ☐	
4	SB027_0.75-0.85		21/10/2024			X		☐ ☐	
5	SB027_1.0-1.1		21/10/2024			X		☐ ☐	
6	SB027_1.25-1.35		21/10/2024			X		☐ ☐	
7	SB027_1.5-1.6		21/10/2024			X		☐ ☐	
8	SB027_1.75-1.85		21/10/2024			X		☐ ☐	
9	SB027_1.9-2.0		21/10/2024			X		☐ ☐	
—	SB027_1.0-1.1 listed twice		21/10/2024			X		☐ ☐	
—	SB027_1.25-1.35 "		21/10/2024			X		☐ ☐	
—	SB027_1.5-1.6 "		21/10/2024			X		☐ ☐	
—	SB027_1.75-1.85 "		21/10/2024			X		☐ ☐	
—	SB027_1.9-2.0 "		21/10/2024			X		☐ ☐	
10	SB031_0.0-0.1		21/10/2024			X		☐ ☐	
11	SB031_0.25-0.35		21/10/2024			X		☐ ☐	
12	SB031_0.5-0.6		21/10/2024			X		☐ ☐	
13	SB031_0.75-0.85		21/10/2024			X		☐ ☐	
14	SB031_1.0-1.1		21/10/2024			X		☐ ☐	
15	SB031_1.25-1.35		21/10/2024			X		☐ ☐	
16	SB031_1.5-1.6		21/10/2024			X		☐ ☐	
17	SB031_1.75-1.85		21/10/2024			X		☐ ☐	
18	SB031_1.9-2.0		21/10/2024			X		☐ ☐	
19	SB034_0.0-0.1		21/10/2024			X		☐ ☐	
20	SB034_0.25-0.35		21/10/2024			X		☐ ☐	
21	SB034_0.5-0.6		21/10/2024			X		☐ ☐	
22	SB034_0.75-0.85		21/10/2024			X		☐ ☐	
23	SB034_1.0-1.1		21/10/2024			X		☐ ☐	
24	SB034_1.25-1.35		21/10/2024			X		☐ ☐	
25	SB034_1.5-1.6		21/10/2024			X		☐ ☐	
26	SB034_1.75-1.85		21/10/2024			X		☐ ☐	
27	SB034_1.9-2.0		21/10/2024			X		☐ ☐	
~~28~~	SB034_0.5-0.6 listed twice		21/10/2024			X		☐ ☐	
~~29~~	SB034_0.75-0.85		21/10/2024			X		☐ ☐	
~~30~~	SB034_1.0-1.1		21/10/2024			X		☐ ☐	
~~31~~	SB034_1.25-1.35		21/10/2024			X		☐ ☐	
~~32~~	SB034_1.5-1.6		21/10/2024			X		☐ ☐	
~~33~~	SB034_1.75-1.85		21/10/2024			X		☐ ☐	
~~34~~	SB034_1.9-2.0		21/10/2024			X		☐ ☐	

Environmental Division
Perth
Work Order Reference
EP2415812

Telephone -- 61-8-9406 1301

LD 1130 22/10

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2415812**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 3
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Rd		
Sampler	: CL		

Dates

Date Samples Received	: 21-Oct-2024 16:50	Issue Date	: 26-Oct-2024
Client Requested Due Date	: 01-Nov-2024	Scheduled Reporting Date	: **01-Nov-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 6	Temperature	: 12.8 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 28 / 28

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA003 pH field/fox
EP2415812-001	21-Oct-2024 00:00	SB027_0.0-0.1	✓
EP2415812-002	21-Oct-2024 00:00	SB027_0.25-0.35	✓
EP2415812-003	21-Oct-2024 00:00	SB027_0.5-0.6	✓
EP2415812-004	21-Oct-2024 00:00	SB027_0.75-0.85	✓
EP2415812-005	21-Oct-2024 00:00	SB027_1.0-1.1	✓
EP2415812-006	21-Oct-2024 00:00	SB027_1.25-1.35	✓
EP2415812-007	21-Oct-2024 00:00	SB027_1.5-1.6	✓
EP2415812-008	21-Oct-2024 00:00	SB027_1.75-1.85	✓
EP2415812-009	21-Oct-2024 00:00	SB027_1.9-2.0	✓
EP2415812-010	21-Oct-2024 00:00	SB031_0.0-0.1	✓
EP2415812-011	21-Oct-2024 00:00	SB031_0.25-0.35	✓
EP2415812-012	21-Oct-2024 00:00	SB031_0.5-0.6	✓
EP2415812-013	21-Oct-2024 00:00	SB031_0.75-0.85	✓
EP2415812-014	21-Oct-2024 00:00	SB031_1.0-1.1	✓
EP2415812-015	21-Oct-2024 00:00	SB031_1.25-1.35	✓
EP2415812-016	21-Oct-2024 00:00	SB031_1.5-1.6	✓
EP2415812-017	21-Oct-2024 00:00	SB031_1.75-1.85	✓
EP2415812-018	21-Oct-2024 00:00	SB031_1.9-2.0	✓
EP2415812-019	21-Oct-2024 00:00	SB034_0.0-0.1	✓
EP2415812-020	21-Oct-2024 00:00	SB034_0.25-0.35	✓
EP2415812-021	21-Oct-2024 00:00	SB034_0.5-0.6	✓
EP2415812-022	21-Oct-2024 00:00	SB034_0.75-0.85	✓
EP2415812-023	21-Oct-2024 00:00	SB034_1.0-1.1	✓
EP2415812-024	21-Oct-2024 00:00	SB034_1.25-1.35	✓
EP2415812-025	21-Oct-2024 00:00	SB034_1.5-1.6	✓
EP2415812-026	21-Oct-2024 00:00	SB034_1.75-1.85	✓
EP2415812-027	21-Oct-2024 00:00	SB034_1.9-2.0	✓
EP2415812-028	21-Oct-2024 00:00	QC104	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2415812**	Page	: 1 of 4
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 21-Oct-2024
Site	: Anketell Rd	Issue Date	: 01-Nov-2024
Sampler	: CL	No. of samples received	: 28
Order number	: ----	No. of samples analysed	: 28

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.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, 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.**

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
EA003 :pH (field/fox)							
Snap Lock Bag - frozen on receipt at ALS (EA003)							
SB027_0.0-0.1, SB027_0.25-0.35, SB027_0.5-0.6, SB027_0.75-0.85, SB027_1.0-1.1, SB027_1.25-1.35, SB027_1.5-1.6, SB027_1.75-1.85, SB027_1.9-2.0, SB031_0.0-0.1, SB031_0.25-0.35, SB031_0.5-0.6, SB031_0.75-0.85, SB031_1.0-1.1, SB031_1.25-1.35, QC104, SB031_1.5-1.6, SB031_1.75-1.85, SB031_1.9-2.0, SB034_0.0-0.1, SB034_0.25-0.35, SB034_0.5-0.6, SB034_0.75-0.85, SB034_1.0-1.1, SB034_1.25-1.35, SB034_1.5-1.6, SB034_1.75-1.85, SB034_1.9-2.0	**21-Oct-2024**	**30-Oct-2024**	17-Jul-2027	✓	**30-Oct-2024**	28-Jan-2025	✓

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)							
pH field/fox	EA003	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH field/fox	EA003	SOIL	In house: Referenced to Ahern et al 1998 - determined on a 1:5 soil/water extract designed to simulate field measured pH and pH after the extract has been oxidised with peroxide.

Preparation Methods	Method	Matrix	Method Descriptions
Drying only	EN020D	SOIL	In house

QUALITY CONTROL REPORT

Work Order	: **EP2415812**	Page	: 1 of 3
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 21-Oct-2024
Order number	: ----	Date Analysis Commenced	: 30-Oct-2024
C-O-C number	: ----	Issue Date	: 01-Nov-2024
Sampler	: CL		
Site	: Anketell Rd		
Quote number	: EP24SENVER0010		
No. of samples received	: 28		
No. of samples analysed	: 28		

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, unless the sampling was conducted by ALS. 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*
Daniel Fisher	Inorganics Analyst	Perth ASS, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA003 :pH (field/fox) (QC Lot: 6161731)									
EP2415812-001	SB027_0.0-0.1	EA003: pH (F)	----	0.1	pH Unit	8.7	8.7	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	5.6	5.8	2.8	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	2	2	0.0	No Limit
EP2415812-010	SB031_0.0-0.1	EA003: pH (F)	----	0.1	pH Unit	5.9	5.9	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	2.6	2.8	4.8	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	2	2	0.0	No Limit
EA003 :pH (field/fox) (QC Lot: 6161732)									
EP2415812-021	SB034_0.5-0.6	EA003: pH (F)	----	0.1	pH Unit	7.3	7.2	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	5.0	4.9	0.0	0% - 20%
		EA003: Reaction Rate	----	1	Reaction Unit	1	1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Work Order	: **EP2415812**	Page	: 1 of 8
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 21-Oct-2024 16:50
Order number	: ----	Date Analysis Commenced	: 30-Oct-2024
C-O-C number	: ----	Issue Date	: 01-Nov-2024 17:03
Sampler	: CL		
Site	: Anketell Rd		
Quote number	: EP24SENVER0010		
No. of samples received	: 28		
No. of samples analysed	: 28		

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, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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*
Daniel Fisher	Inorganics Analyst	Perth ASS, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- ASS: EA003 (NATA Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB027_0.0-0.1	SB027_0.25-0.35	SB027_0.5-0.6	SB027_0.75-0.85	SB027_1.0-1.1
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415812-001	EP2415812-002	EP2415812-003	EP2415812-004	EP2415812-005
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**8.7**	**8.5**	**8.6**	**8.4**	**8.6**
pH (Fox)	----	0.1	pH Unit	**5.6**	**5.5**	**5.4**	**5.3**	**5.3**
Reaction Rate	----	1	Reaction Unit	**2**	**2**	**2**	**2**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB027_1.25-1.35	SB027_1.5-1.6	SB027_1.75-1.85	SB027_1.9-2.0	SB031_0.0-0.1
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415812-006	EP2415812-007	EP2415812-008	EP2415812-009	EP2415812-010
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**8.3**	**8.1**	**8.4**	**8.1**	**5.9**
pH (Fox)	----	0.1	pH Unit	**5.1**	**5.2**	**5.2**	**5.1**	**2.6**
Reaction Rate	----	1	Reaction Unit	**2**	**2**	**2**	**1**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB031_0.25-0.35	SB031_0.5-0.6	SB031_0.75-0.85	SB031_1.0-1.1	SB031_1.25-1.35
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415812-011	EP2415812-012	EP2415812-013	EP2415812-014	EP2415812-015
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**5.2**	**5.5**	**5.6**	**5.8**	**5.8**
pH (Fox)	----	0.1	pH Unit	**3.0**	**3.4**	**4.0**	**3.9**	**3.9**
Reaction Rate	----	1	Reaction Unit	**2**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB031_1.5-1.6	SB031_1.75-1.85	SB031_1.9-2.0	SB034_0.0-0.1	SB034_0.25-0.35
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415812-016	EP2415812-017	EP2415812-018	EP2415812-019	EP2415812-020
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**5.7**	**5.8**	**5.3**	**7.2**	**7.6**
pH (Fox)	----	0.1	pH Unit	**4.1**	**4.1**	**4.0**	**4.7**	**5.1**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB034_0.5-0.6	SB034_0.75-0.85	SB034_1.0-1.1	SB034_1.25-1.35	SB034_1.5-1.6
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2415812-021	EP2415812-022	EP2415812-023	EP2415812-024	EP2415812-025
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.3**	**7.5**	**7.2**	**7.4**	**7.6**
pH (Fox)	----	0.1	pH Unit	**5.0**	**5.2**	**5.2**	**5.3**	**5.4**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB034_1.75-1.85	SB034_1.9-2.0	QC104	----	----
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	EP2415812-026	EP2415812-027	EP2415812-028	--------	--------
				Result	Result	Result	----	----
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	**7.0**	**7.2**	**7.6**	**----**	**----**
pH (Fox)	----	0.1	pH Unit	**5.2**	**5.2**	**4.9**	**----**	**----**
Reaction Rate	----	1	Reaction Unit	**1**	**1**	**1**	**----**	**----**

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2417221**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 3
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: CL		

Dates

Date Samples Received	: 21-Oct-2024 16:50	Issue Date	: 19-Nov-2024
Client Requested Due Date	: 27-Nov-2024	Scheduled Reporting Date	: **27-Nov-2024**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This workorder is a rebatch of EP2415812 and EP2415937.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EP2417221-001	: [22-Oct-2024]	: SB028_0.25-0.35 - Ex EP2415937_002
EP2417221-002	: [22-Oct-2024]	: SB027_1.0-1.1 - Ex EP2415812_005
EP2417221-003	: [22-Oct-2024]	: SB029_0.0-0.1 - Ex EP2415937_010
EP2417221-004	: [22-Oct-2024]	: SB029_1.9-2.0 - Ex EP2415937_018
EP2417221-005	: [21-Oct-2024]	: SB031_0.5-0.6 - Ex EP2415812_012
EP2417221-006	: [22-Oct-2024]	: SB032_0.5-0.6 - Ex EP2415937_030
EP2417221-007	: [22-Oct-2024]	: SB033_1.0-1.1 - Ex EP2415937_041
EP2417221-008	: [22-Oct-2024]	: SB035_0.25-0.35 - Ex EP2415937_047
EP2417221-009	: [21-Oct-2024]	: SB034_1.9-2.0 - Ex EP2415812_018
EP2417221-010	: [22-Oct-2024]	: SB040_3.25-3.35 - Ex EP2415937_068

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA033-WA - Chromium Suite for Acid Sulphate Soils
EP2417221-001	22-Oct-2024 00:00	SB028_0.25-0.35 Ex ...	✓
EP2417221-002	22-Oct-2024 00:00	SB027_1.0-1.1 Ex EP...	✓
EP2417221-003	22-Oct-2024 00:00	SB029_0.0-0.1 Ex EP...	✓
EP2417221-004	22-Oct-2024 00:00	SB029_1.9-2.0 Ex EP...	✓
EP2417221-005	21-Oct-2024 00:00	SB031_0.5-0.6 Ex EP...	✓
EP2417221-006	22-Oct-2024 00:00	SB032_0.5-0.6 Ex EP...	✓
EP2417221-007	22-Oct-2024 00:00	SB033_1.0-1.1 Ex EP...	✓
EP2417221-008	22-Oct-2024 00:00	SB035_0.25-0.35 Ex ...	✓
EP2417221-009	21-Oct-2024 00:00	SB034_1.9-2.0 Ex EP...	✓
EP2417221-010	22-Oct-2024 00:00	SB040_3.25-3.35 Ex ...	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Catherine.Lawrey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Catherine.Lawrey@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2417221**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 3
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: CL		

Dates

Date Samples Received	: 21-Oct-2024 16:50	Issue Date	: 21-Nov-2024
Client Requested Due Date	: 27-Nov-2024	Scheduled Reporting Date	: **27-Nov-2024**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This workorder is a rebatch of EP2415812 and EP2415937.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA033-WA WA - Chromium Suite for Acid Sulphate Soils
EP2417221-001	22-Oct-2024 00:00	SB028_0.25-0.35	✓
EP2417221-002	22-Oct-2024 00:00	SB027_1.0-1.1	✓
EP2417221-003	22-Oct-2024 00:00	SB029_0.0-0.1	✓
EP2417221-004	22-Oct-2024 00:00	SB029_1.9-2.0	✓
EP2417221-005	21-Oct-2024 00:00	SB031_0.5-0.6	✓
EP2417221-006	22-Oct-2024 00:00	SB032_0.5-0.6	✓
EP2417221-007	22-Oct-2024 00:00	SB033_1.0-1.1	✓
EP2417221-008	22-Oct-2024 00:00	SB035_0.25-0.35	✓
EP2417221-009	21-Oct-2024 00:00	SB034_1.9-2.0	✓
EP2417221-010	22-Oct-2024 00:00	SB040_3.25-3.35	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CATHERINE LAWREY

- *AU Certificate of Analysis - NATA (COA)	Email	Catherine.Lawrey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Catherine.Lawrey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Catherine.Lawrey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Catherine.Lawrey@senversa.com.au
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- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2417221**	Page	: 1 of 5
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 21-Oct-2024
Site	: Anketell Road	Issue Date	: 27-Nov-2024
Sampler	: CL	No. of samples received	: 10
Order number	: ----	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, 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.**

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
EA033-A: Actual Acidity								
80* dried soil (EA033)								
SB031_0.5-0.6,	SB034_1.9-2.0	**21-Oct-2024**	**25-Nov-2024**	21-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓
80* dried soil (EA033)								
SB028_0.25-0.35,	SB027_1.0-1.1,	**22-Oct-2024**	**25-Nov-2024**	22-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓
SB029_0.0-0.1,	SB029_1.9-2.0,							
SB032_0.5-0.6,	SB033_1.0-1.1,							
SB035_0.25-0.35,	SB040_3.25-3.35							
EA033-B: Potential Acidity								
80* dried soil (EA033)								
SB031_0.5-0.6,	SB034_1.9-2.0	**21-Oct-2024**	**25-Nov-2024**	21-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓
80* dried soil (EA033)								
SB028_0.25-0.35,	SB027_1.0-1.1,	**22-Oct-2024**	**25-Nov-2024**	22-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓
SB029_0.0-0.1,	SB029_1.9-2.0,							
SB032_0.5-0.6,	SB033_1.0-1.1,							
SB035_0.25-0.35,	SB040_3.25-3.35							
EA033-C: Acid Neutralising Capacity								
80* dried soil (EA033)								
SB031_0.5-0.6,	SB034_1.9-2.0	**21-Oct-2024**	**25-Nov-2024**	21-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓
80* dried soil (EA033)								
SB028_0.25-0.35,	SB027_1.0-1.1,	**22-Oct-2024**	**25-Nov-2024**	22-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓
SB029_0.0-0.1,	SB029_1.9-2.0,							
SB032_0.5-0.6,	SB033_1.0-1.1,							
SB035_0.25-0.35,	SB040_3.25-3.35							
EA033-D: Retained Acidity								
80* dried soil (EA033)								
SB031_0.5-0.6,	SB034_1.9-2.0	**21-Oct-2024**	**25-Nov-2024**	21-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓
80* dried soil (EA033)								
SB028_0.25-0.35,	SB027_1.0-1.1,	**22-Oct-2024**	**25-Nov-2024**	22-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓
SB029_0.0-0.1,	SB029_1.9-2.0,							
SB032_0.5-0.6,	SB033_1.0-1.1,							
SB035_0.25-0.35,	SB040_3.25-3.35							

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
EA033-E: Acid Base Accounting							
80* dried soil (EA033)							
SB031_0.5-0.6, SB034_1.9-2.0	**21-Oct-2024**	**25-Nov-2024**	21-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓
80* dried soil (EA033)							
SB028_0.25-0.35, SB027_1.0-1.1, SB029_0.0-0.1, SB029_1.9-2.0, SB032_0.5-0.6, SB033_1.0-1.1, SB035_0.25-0.35, SB040_3.25-3.35	**22-Oct-2024**	**25-Nov-2024**	22-Oct-2025	✓	**27-Nov-2024**	23-Feb-2025	✓

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)							
Chromium Suite for Acid Sulphate Soils	EA033	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chromium Suite for Acid Sulphate Soils	EA033	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chromium Suite for Acid Sulphate Soils	EA033	1	10	**10.00**	**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
Chromium Suite for Acid Sulphate Soils	EA033	SOIL	In house: Referenced to Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.

Preparation Methods	Method	Matrix	Method Descriptions
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house

QUALITY CONTROL REPORT

Work Order	: **EP2417221**	Page	: 1 of 3
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 21-Oct-2024
Order number	: ----	Date Analysis Commenced	: 25-Nov-2024
C-O-C number	: ----	Issue Date	: 27-Nov-2024
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 10		
No. of samples analysed	: 10		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. 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*
Daniel Fisher	Inorganics Analyst	Perth ASS, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA033-A: Actual Acidity (QC Lot: 6207993)									
EP2417221-001	SB028_0.25-0.35	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	6.6	6.6	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 6207993)									
EP2417221-001	SB028_0.25-0.35	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	<0.005	0.0	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033-C: Acid Neutralising Capacity (QC Lot: 6207993)									
EP2417221-001	SB028_0.25-0.35	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	<0.01	0.0	No Limit
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	<0.01	<0.01	0.0	No Limit
		EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033-E: Acid Base Accounting (QC Lot: 6207993)									
EP2417221-001	SB028_0.25-0.35	EA033: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA033: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA033: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA033: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA033: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
		EA033: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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 (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA033-A: Actual Acidity (QCLot: 6207993)								
EA033: pH KCl (23A)	----	0.1	pH Unit	<0.1	----	----	----	----
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	18 mole H+ / t	102	83.3	112
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----
EA033-B: Potential Acidity (QCLot: 6207993)								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.202 % S	90.1	79.0	109
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----
EA033-C: Acid Neutralising Capacity (QCLot: 6207993)								
EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	4.9 % CaCO3	102	98.7	105
EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	<10	----	----	----	----
EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	<0.01	----	----	----	----
EA033-E: Acid Base Accounting (QCLot: 6207993)								
EA033: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA033: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA033: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Work Order	: **EP2417221**	Page	: 1 of 4
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 21-Oct-2024 16:50
Order number	: ----	Date Analysis Commenced	: 25-Nov-2024
C-O-C number	: ----	Issue Date	: 27-Nov-2024 18:09
Sampler	: CL		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 10		
No. of samples analysed	: 10		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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*
Daniel Fisher	Inorganics Analyst	Perth ASS, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- ASS: EA033 (CRS Suite): Analysis is performed as per the Acid Sulfate Soils Laboratory Methods Guidelines (2004) and the updated National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT (2018)
- ASS: EA033 (CRS Suite): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA033 (CRS Suite): ANC not required for particular samples because pH KCl less than 6.5
- This workorder is a rebatch of EP2415812 and EP2415937.
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB028_0.25-0.35	SB027_1.0-1.1	SB029_0.0-0.1	SB029_1.9-2.0	SB031_0.5-0.6
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	21-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2417221-001	EP2417221-002	EP2417221-003	EP2417221-004	EP2417221-005
				Result	Result	Result	Result	Result
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	**6.6**	**7.7**	**7.5**	**6.5**	**5.7**
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	<0.005	<0.005	<0.005	<0.005
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	<10	<10	<10
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	**0.15**	**0.28**	**----**	**----**
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	<10	**30**	**55**	**----**	**----**
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	<0.01	**0.05**	**0.09**	**----**	**----**
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	<0.02	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	<10	<10	<10
Liming Rate	----	1	kg CaCO3/t	<1	<1	<1	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	<0.02	<0.02	<0.02	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	<10	<10	<10	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB032_0.5-0.6	SB033_1.0-1.1	SB035_0.25-0.35	SB034_1.9-2.0	SB040_3.25-3.35
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP2417221-006	EP2417221-007	EP2417221-008	EP2417221-009	EP2417221-010
				Result	Result	Result	Result	Result
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	**7.1**	**6.2**	**6.0**	**6.0**	**6.3**
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	<0.005	**0.005**	<0.005	**0.007**
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	<10	<10	<10
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	**0.08**	----	----	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	**15**	----	----	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	**0.02**	----	----	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	<0.02	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	<10	<10	<10
Liming Rate	----	1	kg CaCO3/t	<1	<1	<1	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	<0.02	<0.02	<0.02	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	<10	<10	<10	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	<1	<1	<1	<1

Mandatory Fields | **CHAIN OF CUSTODY** | Page ___of___

CLIENT CODE:	SENVER	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	ID
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0434 152 593	SAMPLER MOBILE:	0426 807 500
OFFICE: (Invoiced Office)		ALS QUOTE # (Client PL if blank)	EP24SENVER0010	PURCHASE ORDER NO.:	
PROJECT NO./PROJECT:	P21560 MRWA Kwinana DSI			SITE:	Anketell Road
*INVOICE TO: (Client default if no)	supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au				X CC Invoice to PM
*EMAIL REPORTS TO: (default to PM if blank)	paul.monaco@senversa.com.au; indiana.daniels@senversa.com.au; perth.labreports@senversa.com.au				BIOSECURITY

Country of Origin: (if not Australia)

*** STORAGE REQUIREMENTS** (Please check box →) X Standard Storage ☐ Extended Storage
Standard Storage time from receipt of samples: Water - 2 weeks, Soils - 2 months
Specify Disposal Date:
Note: Extended storage incurs a fee and requires a signed agreement.

*** TURNAROUND** (Please check box →) X 5+ days (no surcharge) ☐ 3 day (+15%) ☐ 2 day (+30%) ☐ 1 day (+50%)
(Not all tests can be expedited, contact Client Services for more information)

***ANALYSIS REQUIRED**
(NB: ALS Quote No. and/or Analysis Suite Codes must be listed to attract correct pricing)
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
Mark an X in the boxes below and/or to indicate the parameter listed above to be tested on that sample.

Comments:

ALS Use Only: Lab ID	Sample ID	Depth	Date/Time	No. Bottles	MATRIX: Soil/Solid (S); Water (W); Sediment (SD); Dust (D); Product (P); Biota (B); Air/Gas (G)	Water Suite 1 - ALS Suite	Water Suite 2 - Major ions/Metals/TRH/BTEX/2 DCFs	Water Suite 3 - PFAS List	Volatile Halogenated Compounds (VHC); Chlorinated Hydrocarbons (CHC) (48 compounds)	SIM Phenols	FAM CA-CID	PFAS - SVT List	Water Suite 2 - metals/TRH/BTEX/4 DCFs						Lab QC (additional bottles req.) Dup	Lab QC (additional bottles req.) MS	
1	MW01		29/11/2024			X	X	X												☐	☐	
2	MW02		29/11/2024			X	X	X														
3	GBH01		29/11/2024			X	X	X	X	X												
4	GBH03		28/11/2024			X	X	X														
SNR	GBH04					X	X	X														
5	GBH05		28/11/2024			X	X	X														
SNR	GBH06					X	X	X														
6	GBH07		29/11/2024			X	X	X														
7	GBH08		28/11/2024			X	X	X														
8	QC117		28/11/2024			X	X	X												☐	☐	
~~9~~	QC217		28/11/2024																	☐	☐	Send to Eurofins
10 9	QC307		28/11/2024			X		X					X									
11 10	QC308		29/11/2024			X		X					X									
11	QC507		28/11/2024								X	X										
12	QC508		29/11/2024								X	X								☐	☐	

Receipt Detail (Lab use ONLY): Ice: Ice Bricks: Chilling Method: Frozen / Melted Frozen / Thawed None
Sample Temp. on Receipt: °C °C °C
Security Seal Intact (circle): Yes / No / N/A(None)
Carrier Details: ☐ Couriers/Post ☐ Client
Con Note #
Packaging (Circle): Hard Esky Foam Esky Box/Bag/Other
Count

Relinquished by: Signature: Date/Time:
Relinquished by: Signature: Date/Time:
Received By: Brian Signature: 29/11 @ Date/Time: 1630
Received by: Signature: Date/Time:

Environmental Division
Perth
Work Order Reference
EP2417960

Telephone : +61-8-9406 1301

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2417960**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 3
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: ID		

Dates

Date Samples Received	: 29-Nov-2024 16:30	Issue Date	: 29-Nov-2024
Client Requested Due Date	: 09-Dec-2024	Scheduled Reporting Date	: **09-Dec-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 3	Temperature	: 6.2 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 12 / 12

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - ASSGW-2 Acid Sulphate Soil GW Suite - Extended	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP131A Ultra Trace Organochlorine Pesticides	WATER - EP231X-LL (EP) PFAS - Full Suite (30 analytes) Low Level	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - W-02 8 Metals	WATER - W-04 TRH/BTEXN
EP2417960-001	29-Nov-2024 00:00	MW01	✓		✓	✓	✓	✓	✓
EP2417960-002	29-Nov-2024 00:00	MW02	✓		✓	✓	✓	✓	✓
EP2417960-003	29-Nov-2024 00:00	GHB01	✓	✓	✓	✓	✓	✓	✓
EP2417960-004	28-Nov-2024 00:00	GHB03	✓		✓	✓	✓	✓	✓
EP2417960-005	28-Nov-2024 00:00	GHB05	✓		✓	✓	✓	✓	✓
EP2417960-006	29-Nov-2024 00:00	GHB07	✓		✓	✓	✓	✓	✓
EP2417960-007	28-Nov-2024 00:00	GHB08	✓		✓	✓	✓	✓	✓
EP2417960-008	28-Nov-2024 00:00	QC117	✓		✓	✓	✓	✓	✓
EP2417960-009	28-Nov-2024 00:00	QC307			✓	✓		✓	✓
EP2417960-010	29-Nov-2024 00:00	QC308			✓	✓		✓	✓
EP2417960-011	28-Nov-2024 00:00	QC507				✓			
EP2417960-012	29-Nov-2024 00:00	QC508				✓			

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EP074 (water) Volatile Organic Compounds	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-18 TRH(C6 - C9)/BTEXN
EP2417960-003	29-Nov-2024 00:00	GHB01		✓			
EP2417960-009	28-Nov-2024 00:00	QC307	✓		✓	✓	
EP2417960-010	29-Nov-2024 00:00	QC308	✓		✓	✓	
EP2417960-011	28-Nov-2024 00:00	QC507					✓
EP2417960-012	29-Nov-2024 00:00	QC508					✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

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

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation

EA005-P: pH by Auto Titrator							
GHB03	Clear Plastic Bottle - Natural	----	28-Nov-2024	29-Nov-2024	✘	----	----
GHB05	Clear Plastic Bottle - Natural	----	28-Nov-2024	29-Nov-2024	✘	----	----
GHB08	Clear Plastic Bottle - Natural	----	28-Nov-2024	29-Nov-2024	✘	----	----
QC117	Clear Plastic Bottle - Natural	----	28-Nov-2024	29-Nov-2024	✘	----	----

Requested Deliverables

Indianna Daniels

- *AU Certificate of Analysis - NATA (COA)	Email	indianna.daniels@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	indianna.daniels@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	indianna.daniels@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	indianna.daniels@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	indianna.daniels@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	indianna.daniels@senversa.com.au

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP131A: Organochlorine Pesticides

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2417960**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 3
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: ID		

Dates

Date Samples Received	: 29-Nov-2024 16:30	Issue Date	: 03-Dec-2024
Client Requested Due Date	: 09-Dec-2024	Scheduled Reporting Date	: **09-Dec-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 3	Temperature	: 6.2 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 12 / 12

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EK085M Sulfide as S 2-	WATER - EP131A Ultra Trace Organochlorine Pesticides	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-02 8 Metals	WATER - W-04 TRH/BTEXN
EP2417960-001	29-Nov-2024 00:00	MW01	✓	✓	✓	✓	✓	✓	✓
EP2417960-002	29-Nov-2024 00:00	MW02	✓	✓	✓	✓	✓	✓	✓
EP2417960-003	29-Nov-2024 00:00	GHB01	✓	✓	✓	✓	✓	✓	✓
EP2417960-004	28-Nov-2024 00:00	GHB03	✓	✓	✓	✓	✓	✓	✓
EP2417960-005	28-Nov-2024 00:00	GHB05	✓	✓	✓	✓	✓	✓	✓
EP2417960-006	29-Nov-2024 00:00	GHB07	✓	✓	✓	✓	✓	✓	✓
EP2417960-007	28-Nov-2024 00:00	GHB08	✓	✓	✓	✓	✓	✓	✓
EP2417960-008	28-Nov-2024 00:00	QC117	✓	✓	✓	✓	✓	✓	✓
EP2417960-009	28-Nov-2024 00:00	QC307	✓		✓		✓	✓	✓
EP2417960-010	29-Nov-2024 00:00	QC308	✓		✓		✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - ED038 (CaCO3 only) Acidity as CaCO3 only	WATER - EG020T Total Metals by ICP/MS (including digestion)	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EK071G Reactive Phosphorus by Discrete analyser	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP231X-SUT PFAS - Super Ultra Trace Waters Long Suite (30
EP2417960-001	29-Nov-2024 00:00	MW01	✓	✓	✓	✓			✓
EP2417960-002	29-Nov-2024 00:00	MW02	✓	✓	✓	✓			✓
EP2417960-003	29-Nov-2024 00:00	GHB01	✓	✓	✓	✓	✓	✓	✓
EP2417960-004	28-Nov-2024 00:00	GHB03	✓	✓	✓	✓			✓
EP2417960-005	28-Nov-2024 00:00	GHB05	✓	✓	✓	✓			✓
EP2417960-006	29-Nov-2024 00:00	GHB07	✓	✓	✓	✓			✓
EP2417960-007	28-Nov-2024 00:00	GHB08	✓	✓	✓	✓			✓
EP2417960-008	28-Nov-2024 00:00	QC117	✓	✓	✓	✓			✓
EP2417960-009	28-Nov-2024 00:00	QC307			✓				
EP2417960-010	29-Nov-2024 00:00	QC308			✓				

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X-LL (EP) PFAS - Full Suite (30 analytes) Low Level	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - W-18 TRH(C6 - C9)/BTEXN
EP2417960-009	28-Nov-2024 00:00	QC307	✓	✓	
EP2417960-010	29-Nov-2024 00:00	QC308	✓	✓	
EP2417960-011	28-Nov-2024 00:00	QC507	✓		✓
EP2417960-012	29-Nov-2024 00:00	QC508	✓		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

Indianna Daniels

- *AU Certificate of Analysis - NATA (COA) Email indianna.daniels@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email indianna.daniels@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email indianna.daniels@senversa.com.au
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- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email paul.monaco@senversa.com.au
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- Chain of Custody (CoC) (COC) Email perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT) Email perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV) Email supplieraccounts@senversa.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP131A: Organochlorine Pesticides

(WATER) EP131S: OC Pesticide Surrogate

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2417960**	Page	: 1 of 15
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 29-Nov-2024
Site	: Anketell Road	Issue Date	: 10-Dec-2024
Sampler	: ID	No. of samples received	: 12
Order number	: ----	No. of samples analysed	: 12

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.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EG020T: Total Metals by ICP-MS	QC-6236206-002	----	**Iron**	7439-89-6	92.2 %	95.0-132%	**Recovery less than lower control limit**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	QC-6233778-002	----	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	195 %	53.1-133%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EK055G: Ammonia as N by Discrete Analyser	EP2417915--001	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	EP2417956--001	Anonymous	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural							
GHB03,	GHB05,	----	----	----	06-Dec-2024	30-Nov-2024	**6**
GHB08,	QC117						
Clear Plastic Bottle - Natural							
MW01,	MW02,	----	----	----	06-Dec-2024	01-Dec-2024	**5**
GHB01,	GHB07						
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural							
GHB03,	GHB05,	----	----	----	02-Dec-2024	30-Nov-2024	**2**
GHB08,	QC117						
Clear Plastic Bottle - Natural							
MW01,	MW02,	----	----	----	02-Dec-2024	01-Dec-2024	**1**
GHB01,	GHB07						

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	38	2.63	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	38	2.63	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**----**	----	----	**07-Dec-2024**	12-Dec-2024	✓
Clear Plastic Bottle - Natural (ED037-P) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**----**	----	----	**07-Dec-2024**	13-Dec-2024	✓
ED038A: Acidity							
Clear Plastic Bottle - Natural (ED038) GHB03, GHB08, QC117	**28-Nov-2024**	**----**	----	----	**06-Dec-2024**	12-Dec-2024	✓
Clear Plastic Bottle - Natural (ED038) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**----**	----	----	**06-Dec-2024**	13-Dec-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**----**	----	----	**02-Dec-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Natural (ED041G) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**----**	----	----	**02-Dec-2024**	27-Dec-2024	✓

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
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**----**	----	----	**02-Dec-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Natural (ED045G) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**----**	----	----	**02-Dec-2024**	27-Dec-2024	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Filtered; Lab-acidified (ED093F) GHB03, GHB05, GHB08, QC117, QC307	**28-Nov-2024**	**----**	----	----	**05-Dec-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Filtered; Lab-acidified (ED093F) MW01, MW02, GHB01, GHB07, QC308	**29-Nov-2024**	**----**	----	----	**05-Dec-2024**	27-Dec-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F) GHB03, GHB05, GHB08, QC117, QC307	**28-Nov-2024**	**----**	----	----	**05-Dec-2024**	27-May-2025	✓
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F) MW01, MW02, GHB01, GHB07, QC308	**29-Nov-2024**	**----**	----	----	**05-Dec-2024**	28-May-2025	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**06-Dec-2024**	27-May-2025	✓	**06-Dec-2024**	27-May-2025	✓
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**06-Dec-2024**	28-May-2025	✓	**06-Dec-2024**	28-May-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F) GHB03, GHB05, GHB08, QC117, QC307	**28-Nov-2024**	**----**	----	----	**05-Dec-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F) MW01, MW02, GHB01, GHB07, QC308	**29-Nov-2024**	**----**	----	----	**05-Dec-2024**	27-Dec-2024	✓

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
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) QC307	**28-Nov-2024**	**----**	----	**----**	**09-Dec-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**----**	----	**----**	**29-Nov-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) QC308	**29-Nov-2024**	**----**	----	**----**	**09-Dec-2024**	27-Dec-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**----**	----	**----**	**29-Nov-2024**	27-Dec-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**----**	----	**----**	**06-Dec-2024**	30-Nov-2024	×
Clear Plastic Bottle - Natural (EK057G) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**----**	----	**----**	**06-Dec-2024**	01-Dec-2024	×
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC307	**28-Nov-2024**	**----**	----	**----**	**09-Dec-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**----**	----	**----**	**29-Nov-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC308	**29-Nov-2024**	**----**	----	**----**	**09-Dec-2024**	27-Dec-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**----**	----	**----**	**29-Nov-2024**	27-Dec-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) GHB03, GHB05, GHB08, QC117, QC307	**28-Nov-2024**	**05-Dec-2024**	26-Dec-2024	✓	**05-Dec-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) MW01, MW02, GHB01, GHB07, QC308	**29-Nov-2024**	**05-Dec-2024**	27-Dec-2024	✓	**05-Dec-2024**	27-Dec-2024	✓

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
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) GHB03, GHB05, GHB08, QC117, QC307	**28-Nov-2024**	**05-Dec-2024**	26-Dec-2024	✓	**05-Dec-2024**	26-Dec-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) MW01, MW02, GHB01, GHB07, QC308	**29-Nov-2024**	**05-Dec-2024**	27-Dec-2024	✓	**05-Dec-2024**	27-Dec-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**----**	----	----	**02-Dec-2024**	30-Nov-2024	×
Clear Plastic Bottle - Natural (EK071G) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**----**	----	----	**02-Dec-2024**	01-Dec-2024	×
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓

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
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
GHB01	**29-Nov-2024**	**05-Dec-2024**	06-Dec-2024	✓	**06-Dec-2024**	14-Jan-2025	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**05-Dec-2024**	05-Dec-2024	✓	**06-Dec-2024**	14-Jan-2025	✓
Amber Glass Bottle - Unpreserved (EP071)							
QC307	**28-Nov-2024**	**05-Dec-2024**	05-Dec-2024	✓	**07-Dec-2024**	14-Jan-2025	✓
Amber Glass Bottle - Unpreserved (EP071)							
MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**05-Dec-2024**	06-Dec-2024	✓	**06-Dec-2024**	14-Jan-2025	✓
Amber Glass Bottle - Unpreserved (EP071)							
QC308	**29-Nov-2024**	**05-Dec-2024**	06-Dec-2024	✓	**07-Dec-2024**	14-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
GHB03, GHB05, GHB08, QC117, QC307, QC507	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**07-Dec-2024**	12-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
MW01, MW02, GHB07, QC308, QC508	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**07-Dec-2024**	13-Dec-2024	✓

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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**05-Dec-2024**	05-Dec-2024	✓	**06-Dec-2024**	14-Jan-2025	✓
Amber Glass Bottle - Unpreserved (EP071) QC307	**28-Nov-2024**	**05-Dec-2024**	05-Dec-2024	✓	**07-Dec-2024**	14-Jan-2025	✓
Amber Glass Bottle - Unpreserved (EP071) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**05-Dec-2024**	06-Dec-2024	✓	**06-Dec-2024**	14-Jan-2025	✓
Amber Glass Bottle - Unpreserved (EP071) QC308	**29-Nov-2024**	**05-Dec-2024**	06-Dec-2024	✓	**07-Dec-2024**	14-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) GHB03, GHB05, GHB08, QC117, QC307, QC507	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**07-Dec-2024**	12-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW01, MW02, GHB07, QC308, QC508	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**07-Dec-2024**	13-Dec-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) GHB03, GHB05, GHB08, QC117, QC307, QC507	**28-Nov-2024**	**06-Dec-2024**	12-Dec-2024	✓	**07-Dec-2024**	12-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) GHB01	**29-Nov-2024**	**03-Dec-2024**	13-Dec-2024	✓	**04-Dec-2024**	13-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW01, MW02, GHB07, QC308, QC508	**29-Nov-2024**	**06-Dec-2024**	13-Dec-2024	✓	**07-Dec-2024**	13-Dec-2024	✓
EP131A: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP131A) GHB03, GHB05, GHB08, QC117, QC307	**28-Nov-2024**	**04-Dec-2024**	05-Dec-2024	✓	**06-Dec-2024**	13-Jan-2025	✓
Amber Glass Bottle - Unpreserved (EP131A) MW01, MW02, GHB01, GHB07, QC308	**29-Nov-2024**	**04-Dec-2024**	06-Dec-2024	✓	**06-Dec-2024**	13-Jan-2025	✓

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-SUT) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**04-Dec-2024**	27-May-2025	✓	**04-Dec-2024**	27-May-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**04-Dec-2024**	28-May-2025	✓	**04-Dec-2024**	28-May-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X-SUT) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**04-Dec-2024**	27-May-2025	✓	**04-Dec-2024**	27-May-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**04-Dec-2024**	28-May-2025	✓	**04-Dec-2024**	28-May-2025	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X-SUT) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**04-Dec-2024**	27-May-2025	✓	**04-Dec-2024**	27-May-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**04-Dec-2024**	28-May-2025	✓	**04-Dec-2024**	28-May-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X-SUT) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**04-Dec-2024**	27-May-2025	✓	**04-Dec-2024**	27-May-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**04-Dec-2024**	28-May-2025	✓	**04-Dec-2024**	28-May-2025	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X-SUT) GHB03, GHB05, GHB08, QC117	**28-Nov-2024**	**04-Dec-2024**	27-May-2025	✓	**04-Dec-2024**	27-May-2025	✓
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GHB01, GHB07	**29-Nov-2024**	**04-Dec-2024**	28-May-2025	✓	**04-Dec-2024**	28-May-2025	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Acidity as Calcium Carbonate	ED038	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	3	18	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	0	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	38	**2.63**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Acidity as Calcium Carbonate	ED038	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**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 Control Samples (LCS) - Continued							
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	0	8	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	8	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **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*	
Matrix Spikes (MS) - Continued							
TRH - Semivolatile Fraction	EP071	1	38	**2.63**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	14	**7.14**	**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
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Acidity as Calcium Carbonate	ED038	WATER	In house: Referenced to APHA 2310 B Acidity is determined by manual titration with a standardised alkali to an end-point pH of 8.3. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Organochlorine Pesticides (Ultra-trace)	EP131A	WATER	In house: Referenced to USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/µECD/uECD). This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is concentrated, combined with an equal volume of reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction of Liquids (Ultra-trace pesticides.)	ORG14-UTP	WATER	In house: Referenced to USEPA 3510 Samples are extracted into dichloromethane, concentrated and exchanged into an apporpriate solvent for GPC and florisil cleanup as required. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QUALITY CONTROL REPORT

Work Order	: **EP2417960**	Page	: 1 of 22
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 29-Nov-2024
Order number	: ----	Date Analysis Commenced	: 29-Nov-2024
C-O-C number	: ----	Issue Date	: 10-Dec-2024
Sampler	: ID		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 12		
No. of samples analysed	: 12		

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, unless the sampling was conducted by ALS. 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 Organics, Smithfield, NSW
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
David Viner	SENIOR LAB TECH	Perth Organics, Wangara, WA
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General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 6240197)									
EP2417930-004	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	156	156	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	156	156	0.0	0% - 20%
EP2417956-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	216	222	2.9	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	216	222	2.9	0% - 20%
ED038A: Acidity (QC Lot: 6241707)									
EP2417960-003	GHB01	ED038: Acidity as CaCO3	----	1	mg/L	14	9	38.1	0% - 50%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6225578)									
EP2417956-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	16	16	0.0	0% - 50%
EP2417961-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	862	897	3.9	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6225577)									
EP2417956-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	104	107	3.0	0% - 20%
EP2417961-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	2240	2080	7.4	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6232848)									
EP2417855-007	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	19	19	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	54	54	0.0	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED093F: Dissolved Major Cations (QC Lot: 6232848) - continued									
EP2417855-007	Anonymous	ED093F: Potassium	7440-09-7	1	mg/L	3	4	0.0	No Limit
EP2417723-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	93	102	9.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	69	73	6.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	54	58	7.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	9	10	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 6232852)									
EP2417960-005	GHB05	ED093F: Calcium	7440-70-2	1	mg/L	17	16	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	25	25	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	3	0.0	No Limit
EP2418020-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	31	30	3.6	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	4	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	134	131	2.2	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	9	9	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6232846)									
EP2417855-007	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.010	0.011	0.0	0% - 50%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	1.03	1.03	0.0	0% - 20%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	2.50	2.65	5.8	0% - 20%
EP2417723-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6232846) - continued									
EP2417723-001	Anonymous	EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.062	0.064	2.5	0% - 50%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6232850)									
EP2417960-005	GHB05	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.018	0.018	0.0	0% - 50%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.10	0.10	0.0	0% - 50%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.46	0.46	0.0	No Limit
EP2418020-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	0.027	0.026	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.11	0.10	0.0	0% - 50%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 6236206)									
EP2417960-001	MW01	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.05	0.06	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.10	0.12	16.5	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6232849)									
EP2417723-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP2417960-003	GHB01	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6225587)									
EP2417956-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.70	0.70	0.0	0% - 20%
EP2417960-007	GHB08	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.06	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6234877)									
EP2417915-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	5.81	5.84	0.5	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6241767)									
EP2417960-006	GHB07	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.04	0.04	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6225588)									
EP2417956-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	3.60	3.57	0.8	0% - 20%
EP2417960-007	GHB08	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.19	1.19	0.0	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6234878)									
EP2418019-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	95.8	96.4	0.6	0% - 20%
EP2417915-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01 (0.05)*	mg/L	<0.05	<0.05	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6228041)									
EP2417829-012	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.6	0.6	0.0	No Limit
EP2417960-002	MW02	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.6	0.6	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6228040)									
EP2417829-012	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.08	0.02	112	No Limit
EP2417960-002	MW02	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.07	0.02	106	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6225580)									
EP2417956-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.03	0.03	0.0	No Limit
EP2417961-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.03	0.03	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6227109)									
EP2417864-001	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6227109) - continued									
EP2417931-002	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 6227109)									
EP2417864-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP2417931-002	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 6227109)									
EP2417864-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP2417931-002	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 6227109)									
EP2417864-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP2417931-002	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074D: Fumigants (QC Lot: 6227109) - continued									
EP2417931-002	Anonymous	EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6227109)									
EP2417864-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP2417931-002	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6227109) - continued									
EP2417931-002	Anonymous	EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 6227109)									
EP2417864-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP2417931-002	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 6227109) - continued									
EP2417931-002	Anonymous	EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 6227109)									
EP2417864-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP2417931-002	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 6227109)									
EP2417864-001	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2417931-002	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6227108)									
EP2417864-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP2417931-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6233058)									
EP2417960-001	MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP2417960-012	QC508	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6236032)									
EP2417956-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6227108)									
EP2417864-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP2417931-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6233058)									
EP2417960-001	MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP2417960-012	QC508	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6236032)									
EP2417956-002	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080: BTEXN (QC Lot: 6227108)									
EP2417864-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 6227108) - continued									
EP2417864-001	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2417931-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 6233058)									
EP2417960-001	MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2417960-012	QC508	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP131A: Organochlorine Pesticides (QC Lot: 6231188)									
EP2417960-006	GHB07	EP131A: Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP131A: Aldrin	309-00-2	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: alpha-BHC	319-84-6	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: beta-BHC	319-85-7	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: delta-BHC	319-86-8	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: 4.4`-DDD	72-54-8	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: 4.4`-DDE	72-55-9	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: 4.4`-DDT	50-29-3	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Dieldrin	60-57-1	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: alpha-Endosulfan	959-98-8	0.01	µg/L	<0.010	<0.010	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP131A: Organochlorine Pesticides (QC Lot: 6231188) - continued									
EP2417960-006	GHB07	EP131A: beta-Endosulfan	33213-65-9	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endosulfan sulfate	1031-07-8	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endrin	72-20-8	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endosulfan (sum)	115-29-7	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endrin aldehyde	7421-93-4	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endrin ketone	53494-70-5	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Heptachlor epoxide	1024-57-3	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Hexachlorobenzene (HCB)	118-74-1	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: gamma-BHC - (Lindane)	58-89-9	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Methoxychlor	72-43-5	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: cis-Chlordane	5103-71-9	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: trans-Chlordane	5103-74-2	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Total Chlordane (sum)	----	0.01	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.01	µg/L	<0.010	<0.010	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 6240197)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	115	85.1	126
				<1	200 mg/L	109	90.5	111
ED038A: Acidity (QCLot: 6241707)								
ED038: Acidity as CaCO3	----	----	mg/L	----	20.3 mg/L	104	70.0	130
				----	405.5 mg/L	97.3	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6225578)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	89.9	112
				<1	500 mg/L	104	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 6225577)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	94.8	88.6	113
				<1	1000 mg/L	103	88.6	113
ED093F: Dissolved Major Cations (QCLot: 6232848)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	110	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	107	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	107	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	108	84.6	108
ED093F: Dissolved Major Cations (QCLot: 6232852)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	104	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	101	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	102	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	106	84.6	108
EG020F: Dissolved Metals by ICP-MS (QCLot: 6232846)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	101	90.2	111
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.0	90.3	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.3	89.7	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.6	87.3	107
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	94.2	88.8	109

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6232846) - continued								
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.5	88.9	108
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.4	89.4	106
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.2	87.6	106
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	99.4	91.1	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.0	87.2	108
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	96.0	83.8	102
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.2	89.5	112
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	94.3	89.9	120
EG020F: Dissolved Metals by ICP-MS (QCLot: 6232850)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	94.8	90.2	111
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.1	90.3	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.8	89.7	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.1	87.3	107
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.0	88.8	109
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.7	88.9	108
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.2	89.4	106
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.6	87.6	106
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	95.7	91.1	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.2	87.2	108
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	86.0	83.8	102
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.4	89.5	112
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	97.0	89.9	120
EG020T: Total Metals by ICP-MS (QCLot: 6236206)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	94.9	91.6	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	# 92.2	95.0	132
EG035F: Dissolved Mercury by FIMS (QCLot: 6232849)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.005 mg/L	98.8	85.6	120
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6225587)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	101	86.2	111
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6234877)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	99.2	86.2	111
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6241767)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	104	88.7	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6225588)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6225588) - continued								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	109	90.5	110
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6234878)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	103	90.5	110
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6228041)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	92.0	80.0	115
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6228040)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	91.8	70.0	110
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6225580)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	104	89.4	109
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6227109)								
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.8	86.8	112
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	94.3	87.0	111
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	93.9	86.5	112
EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	92.7	84.5	113
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	88.4	80.0	118
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	94.1	88.1	110
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	93.6	86.6	113
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	90.8	78.3	120
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	92.9	84.2	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	98.5	82.3	117
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	95.4	83.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	97.1	83.9	115
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	95.8	80.3	120
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	94.8	77.5	122
EP074B: Oxygenated Compounds (QCLot: 6227109)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	101	78.7	121
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	108	64.0	142
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	105	73.8	126
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	104	62.7	142
EP074C: Sulfonated Compounds (QCLot: 6227109)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	99.0	77.5	123
EP074D: Fumigants (QCLot: 6227109)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	94.8	77.0	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP074D: Fumigants (QCLot: 6227109) - continued								
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	98.2	85.9	113
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	96.3	84.4	115
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	97.6	79.9	119
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	98.9	82.8	116
EP074E: Halogenated Aliphatic Compounds (QCLot: 6227109)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	109	74.3	125
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	104	76.8	123
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	102	70.8	128
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	100	77.4	125
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	96.4	77.6	121
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	97.4	79.8	120
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	98.1	80.0	118
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	101	62.8	129
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	99.0	83.6	115
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	98.4	83.7	116
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	97.7	83.6	115
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	97.4	84.5	116
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	96.8	85.4	113
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	96.3	82.4	119
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	97.7	77.3	121
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	97.2	86.4	112
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	99.1	77.6	122
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	95.5	83.4	116
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	96.5	83.8	114
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	93.1	78.9	121
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	96.6	70.0	130
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	95.1	76.1	126
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	94.8	75.4	127
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	103	72.3	125
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	100	79.8	121
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	98.2	67.7	133
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	103	71.8	130
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	94.6	70.6	131
EP074F: Halogenated Aromatic Compounds (QCLot: 6227109)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP074F: Halogenated Aromatic Compounds (QCLot: 6227109) - continued								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	96.6	89.8	110
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.7	88.4	111
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	95.9	76.4	120
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	96.2	84.2	115
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	98.2	82.1	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	95.2	88.4	112
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	98.9	90.1	110
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	96.1	75.6	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	100	84.6	116
EP074G: Trihalomethanes (QCLot: 6227109)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	97.3	83.0	116
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	96.2	79.2	121
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	93.7	77.8	123
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	100	75.5	125
EP074H: Naphthalene (QCLot: 6227109)								
EP074: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.3	73.9	111
EP075(SIM)A: Phenolic Compounds (QCLot: 6236020)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	10 µg/L	19.4	9.07	46.0
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	10 µg/L	50.8	34.3	96.6
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	10 µg/L	50.4	24.9	92.6
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	20 µg/L	38.7	21.8	83.4
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	10 µg/L	34.8	33.9	104
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	10 µg/L	41.0	33.9	102
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	10 µg/L	38.1	34.3	104
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	10 µg/L	44.3	38.4	102
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	10 µg/L	40.9	29.8	106
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	10 µg/L	44.4	31.9	109
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	10 µg/L	36.7	34.2	110
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	19.8	13.6	104
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6227108)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	95.9	73.6	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6233058)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	87.3	73.6	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6236021)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6236021) - continued								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	5676 µg/L	53.5	39.3	103
EP071: C15 - C28 Fraction	----	100	µg/L	<100	10740 µg/L	66.3	47.2	122
EP071: C29 - C36 Fraction	----	50	µg/L	<50	3044 µg/L	55.6	42.5	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6236032)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	5676 µg/L	65.6	39.3	103
EP071: C15 - C28 Fraction	----	100	µg/L	<100	10740 µg/L	81.2	47.2	122
EP071: C29 - C36 Fraction	----	50	µg/L	<50	3044 µg/L	77.6	42.5	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6227108)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	96.0	73.9	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6233058)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	87.2	73.9	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6236021)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7710 µg/L	57.8	47.0	100
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	10930 µg/L	63.8	46.2	116
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1050 µg/L	49.4	24.7	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6236032)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7710 µg/L	70.7	47.0	100
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	10930 µg/L	80.7	46.2	116
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1050 µg/L	71.5	24.7	137
EP080: BTEXN (QCLot: 6227108)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	97.2	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	96.4	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	100	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	97.0	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	96.2	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	88.0	77.0	118
EP080: BTEXN (QCLot: 6233058)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	92.1	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	91.2	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	90.8	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	91.8	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	90.6	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	90.9	77.0	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP131A: Organochlorine Pesticides (QCLot: 6231188)								
EP131A: Aldrin	309-00-2	0.01	µg/L	<0.010	1.1 µg/L	98.1	34.0	145
EP131A: alpha-BHC	319-84-6	0.01	µg/L	<0.010	1.1 µg/L	98.3	27.2	131
EP131A: beta-BHC	319-85-7	0.01	µg/L	<0.010	1.1 µg/L	83.9	28.6	133
EP131A: delta-BHC	319-86-8	0.01	µg/L	<0.010	1.1 µg/L	96.2	36.0	131
EP131A: 4.4`-DDD	72-54-8	0.01	µg/L	<0.010	1.1 µg/L	85.5	36.0	142
EP131A: 4.4`-DDE	72-55-9	0.01	µg/L	<0.010	1.1 µg/L	84.8	30.4	112
EP131A: 4.4`-DDT	50-29-3	0.01	µg/L	<0.010	1.1 µg/L	83.7	29.5	142
EP131A: Dieldrin	60-57-1	0.01	µg/L	<0.010	1.1 µg/L	91.0	28.1	122
EP131A: alpha-Endosulfan	959-98-8	0.01	µg/L	<0.010	1.1 µg/L	95.9	34.0	119
EP131A: beta-Endosulfan	33213-65-9	0.01	µg/L	<0.010	1.1 µg/L	102	31.6	128
EP131A: Endosulfan sulfate	1031-07-8	0.01	µg/L	<0.010	1.1 µg/L	66.4	35.0	159
EP131A: Endrin	72-20-8	0.01	µg/L	<0.010	1.1 µg/L	103	21.5	165
EP131A: Endosulfan (sum)	115-29-7	0.01	µg/L	<0.010	----	----	----	----
EP131A: Endrin aldehyde	7421-93-4	0.01	µg/L	<0.010	1.1 µg/L	73.8	22.7	123
EP131A: Endrin ketone	53494-70-5	0.01	µg/L	<0.010	1.1 µg/L	92.5	16.3	144
EP131A: Heptachlor	76-44-8	0.005	µg/L	<0.005	1.1 µg/L	95.7	33.0	160
EP131A: Heptachlor epoxide	1024-57-3	0.01	µg/L	<0.010	1.1 µg/L	102	33.0	117
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.01	µg/L	<0.010	1.1 µg/L	85.1	23.6	126
EP131A: gamma-BHC - (Lindane)	58-89-9	0.01	µg/L	<0.010	1.1 µg/L	94.8	28.7	134
EP131A: Methoxychlor	72-43-5	0.01	µg/L	<0.010	1.1 µg/L	87.2	29.5	150
EP131A: cis-Chlordane	5103-71-9	0.01	µg/L	<0.010	1.1 µg/L	96.8	27.0	116
EP131A: trans-Chlordane	5103-74-2	0.01	µg/L	<0.010	1.1 µg/L	99.1	31.2	119
EP131A: Total Chlordane (sum)	----	0.01	µg/L	<0.010	----	----	----	----
EP131A: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.01	µg/L	<0.010	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6233778)								
EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	<0.0020	0.00367 µg/L	102	70.0	130
EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.00354 µg/L	99.4	72.0	130
EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.00376 µg/L	87.2	71.0	127
EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.00381 µg/L	101	68.0	131
EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.00381 µg/L	97.8	69.0	134
EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	0.00371 µg/L	99.2	65.0	140
EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.00385 µg/L	111	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6233778)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6233778) - continued								
EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.0020	0.02 µg/L	94.2	73.0	129
EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.004 µg/L	94.0	72.0	129
EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.004 µg/L	96.4	72.0	129
EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.004 µg/L	88.8	72.0	130
EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.004 µg/L	92.0	71.0	133
EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.004 µg/L	92.0	69.0	130
EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.004 µg/L	92.4	71.0	129
EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	94.8	69.0	133
EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	0.004 µg/L	95.6	72.0	134
EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	90.4	65.0	144
EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.004 µg/L	91.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6233778)								
EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.004 µg/L	93.6	67.0	137
EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.01 µg/L	114	68.0	141
EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.01 µg/L	103	57.9	141
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.01 µg/L	96.8	63.3	134
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.01 µg/L	104	60.0	136
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.004 µg/L	97.2	65.0	136
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.004 µg/L	102	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6233778)								
EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.00374 µg/L	105	63.0	143
EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.0038 µg/L	107	64.0	140
EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.00384 µg/L	100	67.0	138
EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.00386 µg/L	# 195	53.1	133

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Matrix Spike (MS) Report		
Spike	SpikeRecovery(%)	Acceptable Limits (%)

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6225578)							
EP2417930-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	108	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 6225577)							
EP2417930-001	Anonymous	ED045G: Chloride	16887-00-6	200 mg/L	115	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6232846)							
EP2417854-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	91.1	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.9	70.0	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	92.4	70.0	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	91.3	70.0	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	91.3	70.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	90.3	70.0	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	91.7	70.0	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	91.6	70.0	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	91.9	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6232850)							
EP2417960-006	GHB07	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	91.4	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.7	70.0	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	92.1	70.0	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	90.5	70.0	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	90.6	70.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	88.2	70.0	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	90.0	70.0	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.8	70.0	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	93.4	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6232849)							
EP2417854-003	Anonymous	EG035F: Mercury	7439-97-6	0.005 mg/L	107	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6225587)							
EP2417956-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	123	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6234877)							
EP2417915-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6241767)							
EP2417960-004	GHB03	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	110	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6225588)							
EP2417956-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6234878)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6234878) - continued							
EP2417915-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	86.9	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6228041)							
EP2417829-013	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	85.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6228040)							
EP2417829-013	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	95.5	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6225580)							
EP2417956-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	118	70.0	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6227109)							
EP2417864-002	Anonymous	EP074: Benzene	71-43-2	20 µg/L	110	82.7	115
		EP074: Toluene	108-88-3	20 µg/L	110	77.1	118
EP074E: Halogenated Aliphatic Compounds (QCLot: 6227109)							
EP2417864-002	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	20 µg/L	112	73.7	126
		EP074: Trichloroethene	79-01-6	20 µg/L	107	79.1	120
EP074F: Halogenated Aromatic Compounds (QCLot: 6227109)							
EP2417864-002	Anonymous	EP074: Chlorobenzene	108-90-7	20 µg/L	108	81.4	115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6227108)							
EP2417864-002	Anonymous	EP080: C6 - C9 Fraction	----	240 µg/L	108	77.0	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6233058)							
EP2417960-002	MW02	EP080: C6 - C9 Fraction	----	240 µg/L	99.6	77.0	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6236032)							
EP2417956-002	Anonymous	EP071: C10 - C14 Fraction	----	5676 µg/L	46.2	44.5	122
		EP071: C15 - C28 Fraction	----	10740 µg/L	63.8	55.1	143
		EP071: C29 - C36 Fraction	----	3044 µg/L	61.9	53.6	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6227108)							
EP2417864-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	290 µg/L	105	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6233058)							
EP2417960-002	MW02	EP080: C6 - C10 Fraction	C6_C10	290 µg/L	96.8	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6236032)							
EP2417956-002	Anonymous	EP071: >C10 - C16 Fraction	----	7710 µg/L	52.1	44.5	122
		EP071: >C16 - C34 Fraction	----	10930 µg/L	63.6	55.1	143
		EP071: >C34 - C40 Fraction	----	1050 µg/L	57.3	53.6	128
EP080: BTEXN (QCLot: 6227108)							
EP2417864-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	105	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	105	73.5	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6233058)							
EP2417960-002	MW02	EP080: Benzene	71-43-2	20 µg/L	102	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	101	73.5	126
EP131A: Organochlorine Pesticides (QCLot: 6231188)							
EP2417960-006	GHB07	EP131A: Aldrin	309-00-2	1.1 µg/L	117	35.8	139
		EP131A: alpha-BHC	319-84-6	1.1 µg/L	115	19.7	153
		EP131A: beta-BHC	319-85-7	1.1 µg/L	96.0	43.8	136
		EP131A: delta-BHC	319-86-8	1.1 µg/L	110	37.4	144
		EP131A: 4.4`-DDD	72-54-8	1.1 µg/L	95.7	37.5	145
		EP131A: 4.4`-DDE	72-55-9	1.1 µg/L	98.9	30.5	146
		EP131A: 4.4`-DDT	50-29-3	1.1 µg/L	109	31.0	151
		EP131A: Dieldrin	60-57-1	1.1 µg/L	98.3	34.4	145
		EP131A: alpha-Endosulfan	959-98-8	1.1 µg/L	112	30.2	141
		EP131A: beta-Endosulfan	33213-65-9	1.1 µg/L	91.6	30.3	148
		EP131A: Endosulfan sulfate	1031-07-8	1.1 µg/L	74.6	19.1	150
		EP131A: Endrin	72-20-8	1.1 µg/L	104	13.0	165
		EP131A: Endrin aldehyde	7421-93-4	1.1 µg/L	91.0	28.3	134
		EP131A: Endrin ketone	53494-70-5	1.1 µg/L	104	15.1	146
		EP131A: Heptachlor	76-44-8	1.1 µg/L	114	33.2	148
		EP131A: Heptachlor epoxide	1024-57-3	1.1 µg/L	115	36.0	143
		EP131A: Hexachlorobenzene (HCB)	118-74-1	1.1 µg/L	106	14.0	146
		EP131A: gamma-BHC - (Lindane)	58-89-9	1.1 µg/L	112	27.2	147
		EP131A: Methoxychlor	72-43-5	1.1 µg/L	81.1	34.4	150
		EP131A: cis-Chlordane	5103-71-9	1.1 µg/L	108	15.4	152
		EP131A: trans-Chlordane	5103-74-2	1.1 µg/L	102	45.1	140

CERTIFICATE OF ANALYSIS

Work Order	: **EP2417960**	Page	: 1 of 21
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 29-Nov-2024 16:30
Order number	: ----	Date Analysis Commenced	: 29-Nov-2024
C-O-C number	: ----	Issue Date	: 10-Dec-2024 16:20
Sampler	: ID		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 12		
No. of samples analysed	: 12		

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, unless the sampling was conducted by ALS. 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 Organics, Smithfield, NSW
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
David Viner	SENIOR LAB TECH	Perth Organics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EP231X-SUT: High LCS recovery deemed acceptable as all associated analytes are <LOR.
- ED038 (Acidity) was not performed for sample #5 due to sample volume constraints.
- EG020: LCS recovery for Fe falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required.
- EG020: Total Al, Fe results for samples EP2417960-004 and -008 have been confirmed by re-preparation and re-analysis.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GHB01	GHB03	GHB05
				Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**285**	**407**	**349**	**312**	**7**
Total Alkalinity as CaCO3	----	1	mg/L		**285**	**407**	**349**	**312**	**7**
ED038A: Acidity									
Acidity as CaCO3	----	1	mg/L		**10**	**19**	**14**	**18**	**----**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**54**	**56**	**54**	**44**	**36**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**108**	**93**	**98**	**105**	**50**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**103**	**110**	**83**	**96**	**17**
Magnesium	7439-95-4	1	mg/L		**18**	**11**	**8**	**10**	**3**
Sodium	7440-23-5	1	mg/L		**90**	**128**	**124**	**100**	**25**
Potassium	7440-09-7	1	mg/L		**5**	**5**	**7**	**4**	**2**
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	**0.10**
Arsenic	7440-38-2	0.001	mg/L		**0.001**	<0.001	**0.001**	**0.001**	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	**0.002**	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**0.001**
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Manganese	7439-96-5	0.001	mg/L		**0.004**	**0.027**	**0.002**	<0.001	**0.018**
Molybdenum	7439-98-7	0.001	mg/L		**0.002**	**0.004**	**0.004**	**0.005**	<0.001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GHB01	GHB03	GHB05
				Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued									
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	**0.46**
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.05**	**0.08**	**0.07**	**2.57**	**6.31**
Iron	7439-89-6	0.05	mg/L		**0.10**	**0.16**	**0.16**	**3.81**	**2.93**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.06**	<0.01	**0.17**	<0.01	**0.02**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.20**	**0.02**	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**7.25**	**3.07**	**2.51**	**2.60**	**0.14**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**7.45**	**3.09**	**2.51**	**2.60**	**0.14**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**0.8**	**0.6**	**1.0**	**0.8**	**0.5**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**8.2**	**3.7**	**3.5**	**3.4**	**0.6**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.02**	**0.07**	**0.14**	**0.16**	**0.06**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		**0.02**	**0.02**	**0.08**	**0.03**	<0.01
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**9.86**	**11.9**	**10.9**	**10.1**	**2.30**
ø Total Cations	----	0.01	meq/L		**10.7**	**12.1**	**10.4**	**10.1**	**2.23**
ø Ionic Balance	----	0.01	%		**3.89**	**0.70**	**2.30**	**0.23**	**1.46**
EP074A: Monocyclic Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GHB01	GHB03	GHB05
				Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Benzene	71-43-2	1	µg/L		----	----	<1	----	----
Toluene	108-88-3	2	µg/L		----	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		----	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	<2	----	----
Styrene	100-42-5	5	µg/L		----	----	<5	----	----
ortho-Xylene	95-47-6	2	µg/L		----	----	<2	----	----
Isopropylbenzene	98-82-8	5	µg/L		----	----	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L		----	----	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		----	----	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L		----	----	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		----	----	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L		----	----	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		----	----	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L		----	----	<5	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	----	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		----	----	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	----	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		----	----	<50	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	----	<5	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		----	----	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		----	----	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		----	----	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		----	----	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	----	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GHB01	GHB03	GHB05
				Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	----	<50	----	----
Chloromethane	74-87-3	50	µg/L		----	----	<50	----	----
Vinyl chloride	75-01-4	50	µg/L		----	----	<50	----	----
Bromomethane	74-83-9	50	µg/L		----	----	<50	----	----
Chloroethane	75-00-3	50	µg/L		----	----	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		----	----	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		----	----	<5	----	----
Iodomethane	74-88-4	5	µg/L		----	----	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		----	----	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		----	----	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		----	----	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		----	----	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		----	----	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		----	----	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		----	----	<5	----	----
Trichloroethene	79-01-6	5	µg/L		----	----	<5	----	----
Dibromomethane	74-95-3	5	µg/L		----	----	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		----	----	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		----	----	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L		----	----	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		----	----	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		----	----	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		----	----	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		----	----	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		----	----	<5	----	----
Pentachloroethane	76-01-7	5	µg/L		----	----	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	----	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GHB01	GHB03	GHB05
				Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Hexachlorobutadiene	87-68-3	5	µg/L		----	----	<5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	----	<5	----	----
Bromobenzene	108-86-1	5	µg/L		----	----	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L		----	----	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L		----	----	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		----	----	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		----	----	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		----	----	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		----	----	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		----	----	<5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	----	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L		----	----	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L		----	----	<5	----	----
Bromoform	75-25-2	5	µg/L		----	----	<5	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	5	µg/L		----	----	<5	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		----	----	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		----	----	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L		----	----	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		----	----	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		----	----	<1.0	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		----	----	<1.0	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		----	----	<1.0	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		----	----	<1.0	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GHB01	GHB03	GHB05
				Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		----	----	<1.0	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		----	----	<1.0	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		----	----	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		----	----	<2.0	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	MW01	MW02	GHB01	GHB03	GHB05
			Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit	EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
delta-BHC	319-86-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDD	72-54-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDE	72-55-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDT	50-29-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Endosulfan (sum)	115-29-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC - (Lindane)	58-89-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Total Chlordane (sum)	----	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GHB01	GHB03	GHB05
				Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
Oxychlordane	27304-13-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0020	µg/L		**0.0021**	<0.0020	**0.0022**	<0.0020	<0.0020
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		**0.0084**	**0.0046**	**0.0091**	**0.0015**	<0.0005
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		**0.0059**	**0.0028**	**0.0050**	**0.0009**	**0.0006**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**0.0388**	**0.0098**	**0.0263**	**0.0018**	**0.0075**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		**0.0013**	<0.0005	**0.0006**	<0.0005	<0.0005
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**0.0324**	**0.0014**	**0.0178**	**0.0005**	**0.0029**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		**0.0117**	<0.0020	**0.0045**	<0.0020	<0.0020
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		**0.0257**	<0.0005	<0.0005	<0.0005	**0.0032**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		**0.0120**	<0.0005	<0.0005	<0.0005	**0.0022**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		**0.0223**	<0.0005	<0.0005	<0.0005	**0.0025**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		**0.0118**	<0.0005	**0.0008**	<0.0005	**0.0006**
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GHB01	GHB03	GHB05
				Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		**0.0712**	**0.0112**	**0.0441**	**0.0023**	**0.0104**
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		**0.163**	**0.0158**	**0.0585**	**0.0038**	**0.0189**
^ **Sum of PFAS**	----	0.0002	µg/L		**0.172**	**0.0186**	**0.0663**	**0.0047**	**0.0195**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**----**	**----**	**95.4**	**----**	**----**
Toluene-D8	2037-26-5	5	%		**----**	**----**	**100**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GHB01	GHB03	GHB05
				Sampling date / time	29-Nov-2024 00:00	29-Nov-2024 00:00	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-001	EP2417960-002	EP2417960-003	EP2417960-004	EP2417960-005
					Result	Result	Result	Result	Result
EP074S: VOC Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	5	%		----	----	98.5	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	----	12.5	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		----	----	47.2	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		----	----	36.2	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	----	59.4	----	----
Anthracene-d10	1719-06-8	1.0	%		----	----	46.8	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		----	----	93.1	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		98.1	97.6	95.5	97.4	101
Toluene-D8	2037-26-5	2	%		98.5	99.5	100	98.9	99.5
4-Bromofluorobenzene	460-00-4	2	%		104	104	105	103	106
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.010	%		128	120	128	115	117
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		99.5	96.9	97.9	98.4	100
13C8-PFOA	----	0.0005	%		102	105	95.5	101	93.8

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GHB07	GHB08	QC117	QC307	QC308
				Sampling date / time	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	29-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-006	EP2417960-007	EP2417960-008	EP2417960-009	EP2417960-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		80	42	305	----	----
Total Alkalinity as CaCO3	----	1	mg/L		80	42	305	----	----
ED038A: Acidity									
Acidity as CaCO3	----	1	mg/L		20	25	15	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		44	34	43	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		40	16	128	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		34	13	95	<1	<1
Magnesium	7439-95-4	1	mg/L		10	9	10	<1	<1
Sodium	7440-23-5	1	mg/L		22	12	102	<1	<1
Potassium	7440-09-7	1	mg/L		11	4	4	<1	<1
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.03	0.16	<0.01	<0.01	<0.01
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L		0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		<0.001	0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Manganese	7439-96-5	0.001	mg/L		0.084	0.063	<0.001	<0.001	<0.001
Molybdenum	7439-98-7	0.001	mg/L		<0.001	0.001	0.005	<0.001	<0.001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GHB07	GHB08	QC117	QC307	QC308
				Sampling date / time	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	29-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-006	EP2417960-007	EP2417960-008	EP2417960-009	EP2417960-010
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued									
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Iron	7439-89-6	0.05	mg/L		**1.42**	**1.61**	<0.05	<0.05	<0.05
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**3.55**	**1.16**	**0.68**	----	----
Iron	7439-89-6	0.05	mg/L		**10.2**	**2.21**	**0.83**	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.15**	**0.05**	<0.01	<0.01	<0.01
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.04**	**0.02**	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**3.45**	**1.17**	**2.62**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**3.49**	**1.19**	**2.62**	<0.01	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**1.4**	**0.7**	**0.6**	<0.1	<0.1
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**4.9**	**1.9**	**3.2**	<0.1	<0.1
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.05**	**0.04**	**0.13**	<0.01	<0.01
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	<0.01	**0.03**	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**3.64**	**2.00**	**10.6**	----	----
ø Total Cations	----	0.01	meq/L		**3.76**	**2.01**	**10.1**	----	----
ø Ionic Balance	----	0.01	%		**1.55**	**0.38**	**2.40**	----	----
EP080/071: Total Petroleum Hydrocarbons									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GHB07	GHB08	QC117	QC307	QC308
				Sampling date / time	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	29-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-006	EP2417960-007	EP2417960-008	EP2417960-009	EP2417960-010
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GHB07	GHB08	QC117	QC307	QC308
				Sampling date / time	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	29-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-006	EP2417960-007	EP2417960-008	EP2417960-009	EP2417960-010
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
delta-BHC	319-86-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDD	72-54-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDE	72-55-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDT	50-29-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Endosulfan (sum)**	115-29-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	76-44-8	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC - (Lindane)	58-89-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Total Chlordane (sum)**	----	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0020	µg/L		<0.0020	<0.0020	<0.0020	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GHB07	GHB08	QC117	QC307	QC308
				Sampling date / time	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	29-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-006	EP2417960-007	EP2417960-008	EP2417960-009	EP2417960-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		<0.0005	<0.0005	**0.0015**	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		<0.0005	<0.0005	**0.0009**	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**0.0005**	<0.0005	**0.0016**	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**0.0018**	<0.0002	**0.0005**	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		<0.0020	<0.0020	<0.0020	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	<0.001	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GHB07	GHB08	QC117	QC307	QC308
				Sampling date / time	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	29-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-006	EP2417960-007	EP2417960-008	EP2417960-009	EP2417960-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	<0.001	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	<0.001	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	<0.001	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	<0.001	<0.001	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		<0.001	**0.002**	<0.001	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	<0.001	<0.001	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	<0.001	<0.001	----	----
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		**0.0023**	<0.0002	**0.0021**	----	----
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		**0.0023**	**0.0020**	**0.0036**	----	----
^ **Sum of PFAS**	----	0.0002	µg/L		**0.0023**	**0.0020**	**0.0045**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**95.3**	**97.3**	**102**	**97.1**	**94.9**
Toluene-D8	2037-26-5	2	%		**98.6**	**99.7**	**98.2**	**99.6**	**99.0**
4-Bromofluorobenzene	460-00-4	2	%		**103**	**104**	**102**	**102**	**104**
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.010	%		**120**	**116**	**120**	**108**	**113**
EP231S: PFAS Surrogate									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GHB07	GHB08	QC117	QC307	QC308
				Sampling date / time	29-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	28-Nov-2024 00:00	29-Nov-2024 00:00
Compound	CAS Number	LOR	Unit		EP2417960-006	EP2417960-007	EP2417960-008	EP2417960-009	EP2417960-010
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C4-PFOS	----	0.0005	%		**94.2**	**95.8**	**98.1**	**----**	**----**
13C8-PFOA	----	0.0005	%		**95.6**	**99.5**	**97.2**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC507	QC508	----	----	----
				Sampling date / time	28-Nov-2024 00:00	29-Nov-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2417960-011	EP2417960-012	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**98.5**	**95.2**	----	----	----
Toluene-D8	2037-26-5	2	%		**99.6**	**101**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**106**	**107**	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	62	134
Toluene-D8	2037-26-5	75	124
4-Bromofluorobenzene	460-00-4	64	118
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	67
2-Chlorophenol-D4	93951-73-6	29	120
2.4.6-Tribromophenol	118-79-6	10	131
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	131
Anthracene-d10	1719-06-8	43	126
4-Terphenyl-d14	1718-51-0	41	142
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	14	166
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP131A: Organochlorine Pesticides

(WATER) EP131S: OC Pesticide Surrogate

CHAIN OF CUSTODY

Mandatory Fields

Page ___of___

CLIENT CODE:	SENVER	*PROJECT MANAGER:	Paul Monaco	SAMPLER:	TS
*CLIENT:	SENVERSA PTY LTD	*PM MOBILE:	0434 152 590	SAMPLER MOBILE:	
OFFICE: (Invoiced Office)		ALS QUOTE # (Client PL if blank)	EP24SENVER0010	PURCHASE ORDER NO.:	
PROJECT NO./PROJECT:	P21560 MRWA Kwinana DSI			SITE:	Ankotell Road

CoC #: (if applicable)

*INVOICE TO: (default if no) supplieraccounts@senversa.com.au; paul.monaco@senversa.com.au — CC Invoice to PM: ×

BIOSECURITY

*EMAIL REPORTS TO: (default to PM if blank) paul.monaco@senversa.com.au; toby.spencer@senversa.com.au; perth.labreports@senversa.com.au

Country of Origin: (if not Australia)

*** STORAGE REQUIREMENTS** (Please check box →) Standard Storage: × / Extended Storage: ☐ — Standard Storage time from receipt of samples: Waters - 2 weeks; Soils - 2 months. Specify Disposal Date: Note: Extended storage incurs a fee and requires a signed agreement.

*** TURNAROUND** (Please check box →) (Not all tests can be expedited, contact Client Services for more information) 5+ days (no surcharge): × / 3 day (+15%): ☐ / 2 day (+30%): ☐ / 1 day (+50%): ☐

***ANALYSIS REQUIRED**
(Add ALS Quote No. and/or Analysis Suite Codes that must be listed to attract quoted price)
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
Mark an X in the boxes below analysis to indicate the parameter listed above to be tested on that sample.

WO Sticker to go here. (ALS use only)

Comments:

ALS Use Only: Lab ID	Sample ID	Depth	Date/Time	No. Bottles	MATRIX: Soil (S) Water (W) Sediments (SD) Dust (D) Product (P) Biota (B) Biosolid (BS)	Water Suite 1 - ASS suite (ASSGW-2)	Water Suite 2 - Metal nanoparticle/TBT/BTEX/EDC's + cyanide + dissolved Mn & Al	Water Suite 3 - PFAS SUI	Volatile Halogenated Compounds (VHC), Chlorinated Hydrocarbons (CHC) (46 compounds)	SIM Phenols	TRH C6-C10	PFAS - SUI Lab	Water Suite 2 - metals/TBT/BTEX/VHC/OCP's					Lab QC (additional bottles req.) Dup	Lab QC (additional bottles req.) MS	Additional Information (Comment on hazards - e.g., asbestos, known high contamination)
1	MW01		15/01/2025			X	X	X										☐	☐	Please sub-sample (if possible to analysis for total metals (as per suite 1)
2	MW02		15/01/2025			X	X	X												Please sub-sample (if possible to analysis for total metals (as per suite 1)
3	GBH01		15/01/2025			X	X	X												Please sub-sample (if possible to analysis for total metals (as per suite 1)
4	GBH03		15/01/2025			X	X	X												Please sub-sample (if possible to analysis for total metals (as per suite 1)
5	GBH04		16/01/2025			X	X	X												
6	GBH05		16/01/2025			X	X	X												
7	GBH06r		16/01/2025			X	X	X												
8	GBH07		16/01/2025			X	X	X												
9	GBH08		16/01/2025			X	X	X												
10	QC118		16/01/2025			X	X	X										☐	☐	
ARL	QC218		16/01/2025															☐	☐	Send to Eurofins
SNR	QC309		15/01/2025			X	X	X												
SMR	QC310		16/01/2025			X	X	X												
11	QC509		15/01/2025								X	X								
12	QC510		16/01/2025								X	X						☐	☐	
13	QC307																			

Receipt Detail (Lab use ONLY) — Ice: Chilling Method: Frozen / Melted; Ice Bricks: Frozen / Thawed; None — Sample Temp. at Receipt: °C °C °C — Security Seal Intact (circle): Yes / No / NA(None) — Carrier Details: ☐ Couriers Post ☐ Client — Con Note # — Packaging: (Circle) Hard Esky, Foam Esky, Box/Bag/Other — Count: # # #

Relinquished by:	Signature:	Date/Time:	Received by: EG.	Signature:	Date/Time: 16/01 @ 1500.
Relinquished by:	Signature:	Date/Time:	Received by:	Signature:	Date/Time:

Form Page 1 of 1

Approved Date: 15/02/2024

Environmental Division Perth
Work Order Reference
EP2500657

Telephone -- 61-8-9406 1301

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2500657**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: paul.monaco@senversa.com.au	E-mail	: kawen.jandu@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: P21560 MRWA Kwinana DSI	Page	: 1 of 3
Order number	: ----	Quote number	: EP2024SENVER0010 (EP24SENVER0010)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Anketell Road		
Sampler	: Toby Spencer		

Dates

Date Samples Received	: 16-Jan-2025 15:00	Issue Date	: 17-Jan-2025
Client Requested Due Date	: 28-Jan-2025	Scheduled Reporting Date	: **28-Jan-2025**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 3	Temperature	: 9.2/4.3 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 14 / 14

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Perth, NATA accreditation no. 825, site no. 15847.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - ASSGW-2 Acid Sulphate Soil GW Suite - Extended	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EP131A Ultra Trace Organochlorine Pesticides	WATER - EP231X-SUT PFAS - Super Ultra Trace Waters Long Suite (30	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - W-02 8 Metals	WATER - W-04 TRH/BTEXN
EP2500657-001	15-Jan-2025 00:00	MW01	✓	✓	✓	✓	✓	✓	✓
EP2500657-002	15-Jan-2025 00:00	MW02	✓	✓	✓	✓	✓	✓	✓
EP2500657-003	15-Jan-2025 00:00	GBH01	✓	✓	✓	✓	✓	✓	✓
EP2500657-004	15-Jan-2025 00:00	GBH03	✓	✓	✓	✓	✓	✓	✓
EP2500657-005	16-Jan-2025 00:00	GBH04	✓	✓	✓	✓	✓	✓	✓
EP2500657-006	16-Jan-2025 00:00	GBH05	✓	✓	✓	✓	✓	✓	✓
EP2500657-007	16-Jan-2025 00:00	GBH06r	✓	✓	✓	✓	✓	✓	✓
EP2500657-008	16-Jan-2025 00:00	GBH07	✓	✓	✓	✓	✓	✓	✓
EP2500657-009	16-Jan-2025 00:00	GBH08	✓	✓	✓	✓	✓	✓	✓
EP2500657-010	16-Jan-2025 00:00	QC118	✓	✓	✓	✓	✓	✓	✓
EP2500657-011	15-Jan-2025 00:00	QC509				✓			
EP2500657-012	16-Jan-2025 00:00	QC510				✓			
EP2500657-013	15-Jan-2025 00:00	QC307	✓	✓	✓	✓	✓	✓	✓
EP2500657-014	16-Jan-2025 00:00	QC308	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-18 TRH(C6 - C9)/BTEXN
EP2500657-011	15-Jan-2025 00:00	QC509	✓
EP2500657-012	16-Jan-2025 00:00	QC510	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

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

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA005-P: pH by Auto Titrator							
GBH01	Clear Plastic Bottle - Natural	----	15-Jan-2025	16-Jan-2025	✘	17-Jan-2025	✘
GBH03	Clear Plastic Bottle - Natural	----	15-Jan-2025	16-Jan-2025	✘	17-Jan-2025	✘
GBH04	Clear Plastic Bottle - Natural	----	16-Jan-2025	16-Jan-2025	✓	17-Jan-2025	✘
GBH05	Clear Plastic Bottle - Natural	----	16-Jan-2025	16-Jan-2025	✓	17-Jan-2025	✘
GBH06r	Clear Plastic Bottle - Natural	----	16-Jan-2025	16-Jan-2025	✓	17-Jan-2025	✘
GBH07	Clear Plastic Bottle - Natural	----	16-Jan-2025	16-Jan-2025	✓	17-Jan-2025	✘
GBH08	Clear Plastic Bottle - Natural	----	16-Jan-2025	16-Jan-2025	✓	17-Jan-2025	✘
MW01	Clear Plastic Bottle - Natural	----	15-Jan-2025	16-Jan-2025	✘	17-Jan-2025	✘
MW02	Clear Plastic Bottle - Natural	----	15-Jan-2025	16-Jan-2025	✘	17-Jan-2025	✘
QC118	Clear Plastic Bottle - Natural	----	16-Jan-2025	16-Jan-2025	✓	17-Jan-2025	✘
QC307	Clear Plastic Bottle - Natural	----	15-Jan-2025	16-Jan-2025	✘	17-Jan-2025	✘
QC308	Clear Plastic Bottle - Natural	----	16-Jan-2025	16-Jan-2025	✓	17-Jan-2025	✘
EK055G: Ammonia as N by Discrete analyser							
MW02	Clear Plastic Bottle - Natural	----	16-Jan-2025	16-Jan-2025	✓	17-Jan-2025	✘
EK061G: Total Kjeldahl Nitrogen as N By Discrete Analyser							
MW02	Clear Plastic Bottle - Natural	16-Jan-2025	13-Feb-2025	16-Jan-2025	✓	17-Jan-2025	✘

Requested Deliverables

PAUL MONACO

- *AU Certificate of Analysis - NATA (COA)	Email	paul.monaco@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	paul.monaco@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	paul.monaco@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	paul.monaco@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	paul.monaco@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	paul.monaco@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	paul.monaco@senversa.com.au

PERTH LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)	Email	perth.labreports@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	perth.labreports@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	perth.labreports@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	perth.labreports@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	perth.labreports@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	perth.labreports@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

Toby Spencer

- *AU Certificate of Analysis - NATA (COA)	Email	toby.spencer@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	toby.spencer@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	toby.spencer@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	toby.spencer@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	toby.spencer@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	toby.spencer@senversa.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP131A: Organochlorine Pesticides

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2500657**	Page	: 1 of 17
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 16-Jan-2025
Site	: Anketell Road	Issue Date	: 28-Jan-2025
Sampler	: Toby Spencer	No. of samples received	: 14
Order number	: ----	No. of samples analysed	: 14

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.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EG020T: Total Metals by ICP-MS	QC-6323697-002	----	**Iron**	7439-89-6	91.5 %	95.0-132%	**Recovery less than lower control limit**
EP231C: Perfluoroalkyl Sulfonamides	QC-6323283-002	----	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	184 %	68.0-141%	**Recovery greater than upper control limit**
EP231C: Perfluoroalkyl Sulfonamides	QC-6323290-002	----	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	150 %	68.0-141%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	EP2500657--002	MW02	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2500657--005	GBH04	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2500657--005	GBH04	**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	EP2500657--005	GBH04	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2500657--005	GBH04	**Perfluorodecane sulfonic acid (PFDS)**	335-77-3	68.6 %	70.0-130%	**Recovery less than lower data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluoroheptanoic acid (PFHpA)**	375-85-9	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluorooctanoic acid (PFOA)**	335-67-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluorotridecanoic acid (PFTrDA)**	72629-94-8	58.0 %	70.0-130%	**Recovery less than lower data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluorotetradecanoic acid (PFTeDA)**	376-06-7	66.0 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
MW01, MW02, GBH01, GBH03, QC307	----	----	----	23-Jan-2025	15-Jan-2025	**8**
Clear Plastic Bottle - Natural						
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	----	----	----	23-Jan-2025	16-Jan-2025	**7**
EK055G: Ammonia as N by Discrete Analyser						
Clear Plastic Bottle - Natural						
MW02	----	----	----	17-Jan-2025	16-Jan-2025	**1**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser						
Clear Plastic Bottle - Natural						
MW02	24-Jan-2025	16-Jan-2025	**8**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser						
Clear Plastic Bottle - Natural						
MW02	24-Jan-2025	17-Jan-2025	**7**	----	----	----
EP131A: Organochlorine Pesticides						
Amber Bottle Unpreserved for Specialist Organics						
MW01, MW02, GBH01, GBH03, QC307	23-Jan-2025	22-Jan-2025	**1**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count		Rate (%)		Quality Control Specification
		QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Organochlorine Pesticides (Ultra-trace)	EP131A	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	2	31	6.45	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	5.13	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Organochlorine Pesticides (Ultra-trace)	EP131A	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	31	3.23	5.00	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	15	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	39	2.56	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**23-Jan-2025**	15-Jan-2025	×
Clear Plastic Bottle - Natural (EA005-P) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**23-Jan-2025**	16-Jan-2025	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**23-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (EA010-P) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**23-Jan-2025**	13-Feb-2025	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**21-Jan-2025**	22-Jan-2025	✓
Clear Plastic Bottle - Natural (EA015H) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**22-Jan-2025**	23-Jan-2025	✓

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
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**23-Jan-2025**	29-Jan-2025	✓
Clear Plastic Bottle - Natural (ED037-P) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**23-Jan-2025**	30-Jan-2025	✓
ED038A: Acidity							
Clear Plastic Bottle - Natural (ED038) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**28-Jan-2025**	29-Jan-2025	✓
Clear Plastic Bottle - Natural (ED038) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**28-Jan-2025**	30-Jan-2025	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) MW01, QC307	**15-Jan-2025**	**----**	----	----	**20-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (ED041G) MW02, GBH01, GBH03	**15-Jan-2025**	**----**	----	----	**24-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (ED041G) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**24-Jan-2025**	13-Feb-2025	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) MW01, MW02, GBH01, QC307	**15-Jan-2025**	**----**	----	----	**20-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (ED045G) GBH03	**15-Jan-2025**	**----**	----	----	**24-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (ED045G) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**24-Jan-2025**	13-Feb-2025	✓

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
ED093F: Dissolved Major Cations							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (ED093F) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**21-Jan-2025**	12-Feb-2025	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (ED093F) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**21-Jan-2025**	13-Feb-2025	✓
EG020F: Dissolved Metals by ICP-MS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG020A-F) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**21-Jan-2025**	14-Jul-2025	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG020A-F) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**21-Jan-2025**	15-Jul-2025	✓
EG020T: Total Metals by ICP-MS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG020A-T) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG020A-T) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**21-Jan-2025**	12-Feb-2025	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**21-Jan-2025**	13-Feb-2025	✓

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
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK055G)							
MW02	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	16-Jan-2025	×
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
MW01, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**17-Jan-2025**	13-Feb-2025	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Natural (EK059G)							
MW02	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	17-Jan-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
MW01, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**17-Jan-2025**	13-Feb-2025	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Natural (EK061G)							
MW02	**15-Jan-2025**	**24-Jan-2025**	16-Jan-2025	×	**24-Jan-2025**	21-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
MW01, GBH01, GBH03, QC307	**15-Jan-2025**	**24-Jan-2025**	12-Feb-2025	✓	**24-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**24-Jan-2025**	13-Feb-2025	✓	**24-Jan-2025**	13-Feb-2025	✓

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
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Natural (EK067G)							
MW02	**15-Jan-2025**	**24-Jan-2025**	17-Jan-2025	×	**24-Jan-2025**	21-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
MW01, GBH01, GBH03, QC307	**15-Jan-2025**	**24-Jan-2025**	12-Feb-2025	✓	**24-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**24-Jan-2025**	13-Feb-2025	✓	**24-Jan-2025**	13-Feb-2025	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	17-Jan-2025	✓
Clear Plastic Bottle - Natural (EK071G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**17-Jan-2025**	18-Jan-2025	✓
EK085M: Sulfide as S2-							
Clear Plastic Bottle - Zinc Acetate/NaOH (EK085)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**22-Jan-2025**	22-Jan-2025	✓
Clear Plastic Bottle - Zinc Acetate/NaOH (EK085)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**22-Jan-2025**	23-Jan-2025	✓

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
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) MW01	**15-Jan-2025**	**20-Jan-2025**	22-Jan-2025	✓	**23-Jan-2025**	01-Mar-2025	✓
Amber Glass Bottle - Unpreserved (EP071) MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**20-Jan-2025**	22-Jan-2025	✓	**24-Jan-2025**	01-Mar-2025	✓
Amber Glass Bottle - Unpreserved (EP071) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**22-Jan-2025**	23-Jan-2025	✓	**24-Jan-2025**	03-Mar-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW01	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**20-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**21-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**20-Jan-2025**	30-Jan-2025	✓	**21-Jan-2025**	30-Jan-2025	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) MW01	**15-Jan-2025**	**20-Jan-2025**	22-Jan-2025	✓	**23-Jan-2025**	01-Mar-2025	✓
Amber Glass Bottle - Unpreserved (EP071) MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**20-Jan-2025**	22-Jan-2025	✓	**24-Jan-2025**	01-Mar-2025	✓
Amber Glass Bottle - Unpreserved (EP071) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**22-Jan-2025**	23-Jan-2025	✓	**24-Jan-2025**	03-Mar-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW01	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**20-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**21-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**20-Jan-2025**	30-Jan-2025	✓	**21-Jan-2025**	30-Jan-2025	✓

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
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) MW01	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**20-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**21-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**20-Jan-2025**	30-Jan-2025	✓	**21-Jan-2025**	30-Jan-2025	✓
EP131A: Organochlorine Pesticides							
Amber Bottle Unpreserved for Specialist Organics (EP131A) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**23-Jan-2025**	22-Jan-2025	×	**26-Jan-2025**	04-Mar-2025	✓
Amber Bottle Unpreserved for Specialist Organics (EP131A) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**23-Jan-2025**	23-Jan-2025	✓	**26-Jan-2025**	04-Mar-2025	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓

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
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Acidity as Calcium Carbonate	ED038	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	4	25	**16.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	0	12	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	2	31	**6.45**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Acidity as Calcium Carbonate	ED038	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	3	31	**9.68**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	29	**13.79**	**10.00**	✓	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 Control Samples (LCS) - Continued							
Sulfide as S2-	EK085	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	6	35	**17.14**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	3	31	**9.68**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	0	12	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	31	**3.23**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	15	**0.00**	**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*	
Matrix Spikes (MS) - Continued							
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	39	**2.56**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Acidity as Calcium Carbonate	ED038	WATER	In house: Referenced to APHA 2310 B Acidity is determined by manual titration with a standardised alkali to an end-point pH of 8.3. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Sulfide as S2-	EK085	WATER	In house: Referenced to APHA 4500-S2- D. Sulfide species present in water samples are immediately precipitated when collected in pretreated caustic/zinc acetate preserved sample containers. The sulfides are coloured using methylene blue indicator. Non-detects may be screened by comparison against a standard at half-LOR, otherwise samples are measured using UV-VIS detection at 664nm. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Organochlorine Pesticides (Ultra-trace)	EP131A	WATER	In house: Referenced to USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/µECD/uECD). This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is concentrated, combined with an equal volume of reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction of Liquids (Ultra-trace pesticides.)	ORG14-UTP	WATER	In house: Referenced to USEPA 3510 Samples are extracted into dichloromethane, concentrated and exchanged into an apporpriate solvent for GPC and florisil cleanup as required. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2500657**	Page	: 1 of 17
Amendment	: **1**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 16-Jan-2025
Site	: Anketell Road	Issue Date	: 30-Jan-2025
Sampler	: Toby Spencer	No. of samples received	: 14
Order number	: ----	No. of samples analysed	: 14

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.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EG020T: Total Metals by ICP-MS	QC-6323697-002	----	**Iron**	7439-89-6	91.5 %	95.0-132%	**Recovery less than lower control limit**
EP231C: Perfluoroalkyl Sulfonamides	QC-6323283-002	----	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	184 %	68.0-141%	**Recovery greater than upper control limit**
EP231C: Perfluoroalkyl Sulfonamides	QC-6323290-002	----	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	150 %	68.0-141%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EK057G: Nitrite as N by Discrete Analyser	EP2501182--002	Anonymous	**Nitrite as N**	14797-65-0	58.6 %	70.0-130%	**Recovery less than lower data quality objective**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	EP2500657--002	MW02	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2500657--005	GBH04	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2500657--005	GBH04	**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	EP2500657--005	GBH04	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2500657--005	GBH04	**Perfluorodecane sulfonic acid (PFDS)**	335-77-3	68.6 %	70.0-130%	**Recovery less than lower data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluoroheptanoic acid (PFHpA)**	375-85-9	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluorooctanoic acid (PFOA)**	335-67-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluorotridecanoic acid (PFTrDA)**	72629-94-8	58.0 %	70.0-130%	**Recovery less than lower data quality objective**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries - Continued							
EP231B: Perfluoroalkyl Carboxylic Acids	EP2500657--005	GBH04	**Perfluorotetradecanoic acid (PFTeDA)**	376-06-7	66.0 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
MW01, MW02, GBH01, GBH03, QC307	----	----	----	23-Jan-2025	15-Jan-2025	**8**
Clear Plastic Bottle - Natural						
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	----	----	----	23-Jan-2025	16-Jan-2025	**7**
EK055G: Ammonia as N by Discrete Analyser						
Clear Plastic Bottle - Natural						
MW02	----	----	----	17-Jan-2025	16-Jan-2025	**1**
EK057G: Nitrite as N by Discrete Analyser						
Clear Plastic Bottle - Natural						
MW01, MW02, GBH01, GBH03, QC307	----	----	----	29-Jan-2025	17-Jan-2025	**12**
Clear Plastic Bottle - Natural						
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	----	----	----	29-Jan-2025	18-Jan-2025	**11**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser						
Clear Plastic Bottle - Natural						
MW02	24-Jan-2025	16-Jan-2025	**8**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser						
Clear Plastic Bottle - Natural						
MW02	24-Jan-2025	17-Jan-2025	**7**	----	----	----
EP131A: Organochlorine Pesticides						
Amber Bottle Unpreserved for Specialist Organics						
MW01, MW02, GBH01, GBH03, QC307	23-Jan-2025	22-Jan-2025	**1**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Organochlorine Pesticides (Ultra-trace)	EP131A	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	2	31	6.45	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	5.13	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Organochlorine Pesticides (Ultra-trace)	EP131A	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	31	3.23	5.00	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	15	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	39	2.56	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

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

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**23-Jan-2025**	15-Jan-2025	×
Clear Plastic Bottle - Natural (EA005-P)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**23-Jan-2025**	16-Jan-2025	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**23-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (EA010-P)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**23-Jan-2025**	13-Feb-2025	✓

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
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**21-Jan-2025**	22-Jan-2025	✓
Clear Plastic Bottle - Natural (EA015H) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**22-Jan-2025**	23-Jan-2025	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**23-Jan-2025**	29-Jan-2025	✓
Clear Plastic Bottle - Natural (ED037-P) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**23-Jan-2025**	30-Jan-2025	✓
ED038A: Acidity							
Clear Plastic Bottle - Natural (ED038) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**28-Jan-2025**	29-Jan-2025	✓
Clear Plastic Bottle - Natural (ED038) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**28-Jan-2025**	30-Jan-2025	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) MW01, QC307	**15-Jan-2025**	**----**	----	----	**20-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (ED041G) MW02, GBH01, GBH03	**15-Jan-2025**	**----**	----	----	**24-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (ED041G) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**24-Jan-2025**	13-Feb-2025	✓

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
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
MW01, MW02, GBH01, QC307	**15-Jan-2025**	**----**	----	----	**20-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (ED045G)							
GBH03	**15-Jan-2025**	**----**	----	----	**24-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Natural (ED045G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**24-Jan-2025**	13-Feb-2025	✓
ED093F: Dissolved Major Cations							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (ED093F)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**21-Jan-2025**	12-Feb-2025	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (ED093F)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**21-Jan-2025**	13-Feb-2025	✓
EG020F: Dissolved Metals by ICP-MS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG020A-F)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**21-Jan-2025**	14-Jul-2025	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG020A-F)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**21-Jan-2025**	15-Jul-2025	✓
EG020T: Total Metals by ICP-MS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG020A-T)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG020A-T)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓

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
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**21-Jan-2025**	12-Feb-2025	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**21-Jan-2025**	13-Feb-2025	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK055G)							
MW02	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	16-Jan-2025	×
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
MW01, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**17-Jan-2025**	13-Feb-2025	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**29-Jan-2025**	17-Jan-2025	×
Clear Plastic Bottle - Natural (EK057G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**29-Jan-2025**	18-Jan-2025	×
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Natural (EK059G)							
MW02	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	17-Jan-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
MW01, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**17-Jan-2025**	13-Feb-2025	✓

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
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Natural (EK061G)							
MW02	**15-Jan-2025**	**24-Jan-2025**	16-Jan-2025	×	**24-Jan-2025**	21-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
MW01, GBH01, GBH03, QC307	**15-Jan-2025**	**24-Jan-2025**	12-Feb-2025	✓	**24-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**24-Jan-2025**	13-Feb-2025	✓	**24-Jan-2025**	13-Feb-2025	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Natural (EK067G)							
MW02	**15-Jan-2025**	**24-Jan-2025**	17-Jan-2025	×	**24-Jan-2025**	21-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
MW01, GBH01, GBH03, QC307	**15-Jan-2025**	**24-Jan-2025**	12-Feb-2025	✓	**24-Jan-2025**	12-Feb-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**24-Jan-2025**	13-Feb-2025	✓	**24-Jan-2025**	13-Feb-2025	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**17-Jan-2025**	17-Jan-2025	✓
Clear Plastic Bottle - Natural (EK071G)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**17-Jan-2025**	18-Jan-2025	✓
EK085M: Sulfide as S2-							
Clear Plastic Bottle - Zinc Acetate/NaOH (EK085)							
MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**----**	----	----	**22-Jan-2025**	22-Jan-2025	✓
Clear Plastic Bottle - Zinc Acetate/NaOH (EK085)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**----**	----	----	**22-Jan-2025**	23-Jan-2025	✓

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
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
MW01	**15-Jan-2025**	**20-Jan-2025**	22-Jan-2025	✓	**23-Jan-2025**	01-Mar-2025	✓
Amber Glass Bottle - Unpreserved (EP071)							
MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**20-Jan-2025**	22-Jan-2025	✓	**24-Jan-2025**	01-Mar-2025	✓
Amber Glass Bottle - Unpreserved (EP071)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**22-Jan-2025**	23-Jan-2025	✓	**24-Jan-2025**	03-Mar-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
MW01	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**20-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**21-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**20-Jan-2025**	30-Jan-2025	✓	**21-Jan-2025**	30-Jan-2025	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
MW01	**15-Jan-2025**	**20-Jan-2025**	22-Jan-2025	✓	**23-Jan-2025**	01-Mar-2025	✓
Amber Glass Bottle - Unpreserved (EP071)							
MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**20-Jan-2025**	22-Jan-2025	✓	**24-Jan-2025**	01-Mar-2025	✓
Amber Glass Bottle - Unpreserved (EP071)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**22-Jan-2025**	23-Jan-2025	✓	**24-Jan-2025**	03-Mar-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
MW01	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**20-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**21-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**20-Jan-2025**	30-Jan-2025	✓	**21-Jan-2025**	30-Jan-2025	✓

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
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) MW01	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**20-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**20-Jan-2025**	29-Jan-2025	✓	**21-Jan-2025**	29-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**20-Jan-2025**	30-Jan-2025	✓	**21-Jan-2025**	30-Jan-2025	✓
EP131A: Organochlorine Pesticides							
Amber Bottle Unpreserved for Specialist Organics (EP131A) MW01, MW02, GBH01, GBH03, QC307	**15-Jan-2025**	**23-Jan-2025**	22-Jan-2025	×	**26-Jan-2025**	04-Mar-2025	✓
Amber Bottle Unpreserved for Specialist Organics (EP131A) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC308	**16-Jan-2025**	**23-Jan-2025**	23-Jan-2025	✓	**26-Jan-2025**	04-Mar-2025	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓

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
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X-SUT) MW01, MW02, GBH01, GBH03, QC509, QC307	**15-Jan-2025**	**21-Jan-2025**	14-Jul-2025	✓	**21-Jan-2025**	14-Jul-2025	✓
HDPE (no PTFE) (EP231X-SUT) GBH04, GBH05, GBH06r, GBH07, GBH08, QC118, QC510, QC308	**16-Jan-2025**	**21-Jan-2025**	15-Jul-2025	✓	**21-Jan-2025**	15-Jul-2025	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Acidity as Calcium Carbonate	ED038	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	4	25	**16.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	0	12	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	2	31	**6.45**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Acidity as Calcium Carbonate	ED038	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Alkalinity by Auto Titrator	ED037-P	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	3	31	**9.68**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	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 Control Samples (LCS) - Continued							
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	6	35	**17.14**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	3	31	**9.68**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	0	12	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	1	31	**3.23**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	36	**5.56**	**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*	
Matrix Spikes (MS) - Continued							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfide as S2-	EK085	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	0	15	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	39	**2.56**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Acidity as Calcium Carbonate	ED038	WATER	In house: Referenced to APHA 2310 B Acidity is determined by manual titration with a standardised alkali to an end-point pH of 8.3. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Sulfide as S2-	EK085	WATER	In house: Referenced to APHA 4500-S2- D. Sulfide species present in water samples are immediately precipitated when collected in pretreated caustic/zinc acetate preserved sample containers. The sulfides are coloured using methylene blue indicator. Non-detects may be screened by comparison against a standard at half-LOR, otherwise samples are measured using UV-VIS detection at 664nm. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Organochlorine Pesticides (Ultra-trace)	EP131A	WATER	In house: Referenced to USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/µECD/uECD). This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-SUT	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is concentrated, combined with an equal volume of reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction of Liquids (Ultra-trace pesticides.)	ORG14-UTP	WATER	In house: Referenced to USEPA 3510 Samples are extracted into dichloromethane, concentrated and exchanged into an apporpriate solvent for GPC and florisil cleanup as required. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QUALITY CONTROL REPORT

Work Order	: **EP2500657**	Page	: 1 of 20
Amendment	: **1**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 16-Jan-2025
Order number	: ----	Date Analysis Commenced	: 17-Jan-2025
C-O-C number	: ----	Issue Date	: 30-Jan-2025
Sampler	: Toby Spencer		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 14		
No. of samples analysed	: 14		

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, unless the sampling was conducted by ALS. 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*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA
Niamh Carthew	Inorganic Chemist	Perth Inorganics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 6327428)									
EP2500657-002	MW02	EA005-P: pH Value	----	0.01	pH Unit	7.85	7.83	0.3	0% - 20%
EP2500657-013	QC307	EA005-P: pH Value	----	0.01	pH Unit	5.90	5.79	1.9	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6327427)									
EP2500657-002	MW02	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1090	1090	0.1	0% - 20%
EP2500657-013	QC307	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	<1	0.0	No Limit
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6325074)									
EP2500601-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	427	422	1.1	0% - 20%
EP2500657-003	GBH01	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	611	599	2.0	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6326063)									
EP2500657-005	GBH04	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	939	956	1.8	0% - 20%
EP2500718-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	166000	179000	7.3	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6327429)									
EP2500657-002	MW02	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	408	405	0.6	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	408	405	0.6	0% - 20%
EP2500657-013	QC307	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED038A: Acidity (QC Lot: 6337285)									
EP2500657-001	MW01	ED038: Acidity as CaCO3	----	1	mg/L	16	16	0.0	0% - 50%
EP2500657-010	QC118	ED038: Acidity as CaCO3	----	1	mg/L	37	35	6.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6319064)									
EP2500654-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	5000	5110	2.0	0% - 20%
EP2500647-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	92	90	1.6	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6319073)									
EP2500677-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	39	45	14.6	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6319065)									
EP2500654-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	5	5	0.0	No Limit
EP2500647-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	108	111	2.2	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6319071)									
EP2500677-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	25	25	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6323571)									
EP2500635-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	15	16	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	29	29	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	330	325	1.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	18	18	0.0	0% - 50%
EP2500657-002	MW02	ED093F: Calcium	7440-70-2	1	mg/L	107	108	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	11	11	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	124	122	1.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6323574)									
EP2500657-002	MW02	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP2500677-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6323574) - continued									
EP2500677-001	Anonymous	EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.349	0.345	1.4	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	1.11	1.10	0.0	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 6323697)									
EP2500657-001	MW01	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP2500657-013	QC307	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6323573)									
EP2500635-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP2500657-008	GBH07	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6319206)									
EP2500438-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.50	0.50	0.0	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6319210)									
EP2500650-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.04	0.0	No Limit
EP2500657-006	GBH05	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.03	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6341192)									
EP2501182-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP2501182-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6319205)									
EP2500596-008	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.47	0.46	0.0	0% - 20%
EP2500438-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6319209)									
EP2500650-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.93	1.93	0.0	0% - 20%
EP2500657-006	GBH05	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.44	1.43	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6329982)									
EP2500650-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.7	0.7	0.0	No Limit
EP2500657-010	QC118	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	6.9	7.7	10.7	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6329983)									
EP2500650-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.03	67.8	No Limit
EP2500657-010	QC118	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.08	0.06	32.3	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6319063)									
EP2500654-004	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.08	120	No Limit
EP2500647-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.01	0.01	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6319072)									
EP2500681-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP2500677-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK085M: Sulfide as S2- (QC Lot: 6326233)									
EP2500657-001	MW01	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP2500657-010	QC118	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6320610)									
EP2500657-011	QC509	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP2500698-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6320625)									
EP2500657-001	MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP2500657-013	QC307	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6326250)									
EP2500596-008	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	270	190	31.3	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP2500662-005	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6320610)									
EP2500657-011	QC509	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP2500698-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6320625)									
EP2500657-001	MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP2500657-013	QC307	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6326250)									
EP2500596-008	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	250	140	59.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP2500662-005	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6326250) - continued									
EP2500662-005	Anonymous	EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080: BTEXN (QC Lot: 6320610)									
EP2500657-011	QC509	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2500698-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 6320625)									
EP2500657-001	MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2500657-013	QC307	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6323283)									
EP2500657-005	GBH04	EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	0.0465	0.0453	2.6	0% - 20%
		EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	0.0140	0.0149	6.1	0% - 20%
		EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	0.0099	0.0096	3.5	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6323283) - continued									
EP2500657-005	GBH04	EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	0.148	0.146	0.9	0% - 20%
		EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	0.0027	0.0025	8.9	No Limit
		EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005 (0.0008)*	µg/L	<0.0008	<0.0008	0.0	No Limit
		EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	0.0027	0.0031	12.6	No Limit
EP2500701-003	Anonymous	EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	0.0177	0.0215	19.5	0% - 20%
		EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	0.0039	0.0044	11.5	No Limit
		EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	0.0014	0.0016	10.1	No Limit
		EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	0.0143	0.0166	15.3	0% - 20%
		EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.0006	24.5	No Limit
		EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	<0.0020	<0.0020	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6323283)									
EP2500657-005	GBH04	EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	0.0195	0.0190	2.3	0% - 20%
		EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	0.0159	0.0154	3.3	0% - 20%
		EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	0.0169	0.0158	7.0	0% - 20%
		EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	0.0606	0.0670	10.0	0% - 20%
		EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	0.0018	0.0016	8.9	No Limit
		EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005 (0.0008)*	µg/L	<0.0008	<0.0008	0.0	No Limit
		EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005 (0.0020)*	µg/L	<0.0020	<0.0020	0.0	No Limit
		EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002 (0.0039)*	µg/L	0.0276	0.0286	3.7	No Limit
EP2500701-003	Anonymous	EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005 (0.0008)*	µg/L	0.0032	0.0040	22.6	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6323283) - continued									
EP2500701-003	Anonymous	EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	0.0048	0.0054	11.4	0% - 50%
		EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	0.0026	0.0027	5.2	No Limit
		EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	0.0039	0.0047	18.9	No Limit
		EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002 (0.0040)*	µg/L	<0.0039	<0.0040	2.8	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6323283)									
EP2500657-005	GBH04	EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP2500701-003	Anonymous	EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6323283) - continued									
EP2500701-003	Anonymous	EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6323283)									
EP2500657-005	GBH04	EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	0.010	0.010	0.0	0% - 50%
		EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP2500701-003	Anonymous	EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6323283)									
EP2500657-005	GBH04	EP231X-SUT: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	µg/L	0.194	0.191	1.7	0% - 20%
		EP231X-SUT: Sum of PFAS (WA DER List)	----	0.0002	µg/L	0.359	0.362	0.8	0% - 20%
		EP231X-SUT: Sum of PFAS	----	0.0002	µg/L	0.376	0.379	0.7	0% - 20%
EP2500701-003	Anonymous	EP231X-SUT: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	µg/L	0.0320	0.0381	17.4	0% - 20%
		EP231X-SUT: Sum of PFAS (WA DER List)	----	0.0002	µg/L	0.0504	0.0593	16.2	0% - 20%
		EP231X-SUT: Sum of PFAS	----	0.0002	µg/L	0.0518	0.0615	17.1	0% - 20%

Method Blank (MB) and Laboratory Control Sample (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 Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6327428)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.5	102
				----	7 pH Unit	100	98.5	102
EA010P: Conductivity by PC Titrator (QCLot: 6327427)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	101	92.1	105
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6325074)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	101	80.0	120
				<10	293 mg/L	105	80.0	120
				<10	2470 mg/L	104	80.0	120
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6326063)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	96.1	80.0	120
				<10	293 mg/L	107	80.0	120
				<10	2470 mg/L	103	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 6327429)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	111	85.1	126
				<1	200 mg/L	103	90.5	111
ED038A: Acidity (QCLot: 6337285)								
ED038: Acidity as CaCO3	----	----	mg/L	----	20.3 mg/L	101	70.0	130
				----	405.5 mg/L	92.4	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6319064)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.3	89.9	112
				<1	500 mg/L	96.6	89.9	112
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6319073)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	101	89.9	112
				<1	500 mg/L	102	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 6319065)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	93.8	88.6	113
				<1	1000 mg/L	102	88.6	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED045G: Chloride by Discrete Analyser (QCLot: 6319071)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	95.9	88.6	113
				<1	1000 mg/L	103	88.6	113
ED093F: Dissolved Major Cations (QCLot: 6323571)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	105	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	101	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	84.6	108
EG020F: Dissolved Metals by ICP-MS (QCLot: 6323574)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	106	90.2	111
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	90.3	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.0	89.7	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.8	87.3	107
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.6	88.8	109
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.7	88.9	108
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.8	89.4	106
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	99.0	87.6	106
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	104	91.1	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	87.2	108
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	102	83.8	102
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	89.5	112
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	92.8	89.9	120
EG020T: Total Metals by ICP-MS (QCLot: 6323697)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	102	91.6	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	# 91.5	95.0	132
EG035F: Dissolved Mercury by FIMS (QCLot: 6323573)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.005 mg/L	94.0	85.6	120
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6319206)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	100	86.2	111
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6319210)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	99.3	86.2	111
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6341192)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	103	88.7	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6319205)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.7	90.5	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6319209)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	98.3	90.5	110
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6329982)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	94.6	80.0	115
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6329983)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	96.6	70.0	110
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6319063)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	109	89.4	109
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6319072)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	106	89.4	109
EK085M: Sulfide as S2- (QCLot: 6326233)								
EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	0.5 mg/L	96.2	84.1	115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6320610)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	90.1	73.6	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6320625)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	100	73.6	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6322158)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	5676 µg/L	69.7	39.3	103
EP071: C15 - C28 Fraction	----	100	µg/L	<100	10740 µg/L	85.4	47.2	122
EP071: C29 - C36 Fraction	----	50	µg/L	<50	3044 µg/L	75.0	42.5	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6326250)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	5676 µg/L	62.2	39.3	103
EP071: C15 - C28 Fraction	----	100	µg/L	<100	10740 µg/L	77.7	47.2	122
EP071: C29 - C36 Fraction	----	50	µg/L	<50	3044 µg/L	79.7	42.5	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6320610)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	87.6	73.9	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6320625)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	98.7	73.9	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6322158)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7710 µg/L	73.8	47.0	100
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	10930 µg/L	83.6	46.2	116
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1050 µg/L	70.2	24.7	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6326250)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7710 µg/L	67.0	47.0	100
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	10930 µg/L	78.2	46.2	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6326250) - continued								
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1050 µg/L	70.3	24.7	137
EP080: BTEXN (QCLot: 6320610)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	88.1	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	95.9	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	98.1	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	96.7	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	98.9	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	101	77.0	118
EP080: BTEXN (QCLot: 6320625)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	99.1	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	96.0	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	102	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	101	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	98.9	77.0	118
EP131A: Organochlorine Pesticides (QCLot: 6327777)								
EP131A: Aldrin	309-00-2	0.01	µg/L	<0.010	1.1 µg/L	89.3	34.0	145
EP131A: alpha-BHC	319-84-6	0.01	µg/L	<0.010	1.1 µg/L	114	27.2	131
EP131A: beta-BHC	319-85-7	0.01	µg/L	<0.010	1.1 µg/L	94.7	28.6	133
EP131A: delta-BHC	319-86-8	0.01	µg/L	<0.010	1.1 µg/L	98.5	36.0	131
EP131A: 4.4`-DDD	72-54-8	0.01	µg/L	<0.010	1.1 µg/L	118	36.0	142
EP131A: 4.4`-DDE	72-55-9	0.01	µg/L	<0.010	1.1 µg/L	85.3	30.4	112
EP131A: 4.4`-DDT	50-29-3	0.01	µg/L	<0.010	1.1 µg/L	75.5	29.5	142
EP131A: Dieldrin	60-57-1	0.01	µg/L	<0.010	1.1 µg/L	112	28.1	122
EP131A: alpha-Endosulfan	959-98-8	0.01	µg/L	<0.010	1.1 µg/L	118	34.0	119
EP131A: beta-Endosulfan	33213-65-9	0.01	µg/L	<0.010	1.1 µg/L	106	31.6	128
EP131A: Endosulfan sulfate	1031-07-8	0.01	µg/L	<0.010	1.1 µg/L	110	35.0	159
EP131A: Endrin	72-20-8	0.01	µg/L	<0.010	1.1 µg/L	97.6	21.5	165
EP131A: Endosulfan (sum)	115-29-7	0.01	µg/L	<0.010	----	----	----	----
EP131A: Endrin aldehyde	7421-93-4	0.01	µg/L	<0.010	1.1 µg/L	95.3	22.7	123
EP131A: Endrin ketone	53494-70-5	0.01	µg/L	<0.010	1.1 µg/L	108	16.3	144
EP131A: Heptachlor	76-44-8	0.005	µg/L	<0.005	1.1 µg/L	109	33.0	160
EP131A: Heptachlor epoxide	1024-57-3	0.01	µg/L	<0.010	1.1 µg/L	82.5	33.0	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP131A: Organochlorine Pesticides (QCLot: 6327777) - continued								
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.01	µg/L	<0.010	1.1 µg/L	114	23.6	126
EP131A: gamma-BHC - (Lindane)	58-89-9	0.01	µg/L	<0.010	1.1 µg/L	115	28.7	134
EP131A: Methoxychlor	72-43-5	0.01	µg/L	<0.010	1.1 µg/L	95.2	29.5	150
EP131A: cis-Chlordane	5103-71-9	0.01	µg/L	<0.010	1.1 µg/L	111	27.0	116
EP131A: trans-Chlordane	5103-74-2	0.01	µg/L	<0.010	1.1 µg/L	102	31.2	119
EP131A: Total Chlordane (sum)	----	0.01	µg/L	<0.010	----	----	----	----
EP131A: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.01	µg/L	<0.010	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6323266)								
EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	<0.0020	0.00367 µg/L	79.3	70.0	130
EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.00354 µg/L	95.8	72.0	130
EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.00376 µg/L	105	71.0	127
EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.00381 µg/L	100	68.0	131
EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.00381 µg/L	104	69.0	134
EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	0.00371 µg/L	91.4	65.0	140
EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.00385 µg/L	70.2	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6323283)								
EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	<0.0020	0.00367 µg/L	95.9	70.0	130
EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.00354 µg/L	94.9	72.0	130
EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.00376 µg/L	104	71.0	127
EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.00381 µg/L	90.7	68.0	131
EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.00381 µg/L	104	69.0	134
EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	0.00371 µg/L	92.7	65.0	140
EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.00385 µg/L	75.6	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6323290)								
EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	<0.0020	0.00367 µg/L	94.2	70.0	130
EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.00354 µg/L	91.3	72.0	130
EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.00376 µg/L	103	71.0	127
EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.00381 µg/L	98.3	68.0	131
EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.00381 µg/L	92.8	69.0	134
EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	0.00371 µg/L	93.6	65.0	140
EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.00385 µg/L	85.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323266)								
EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.0020	0.02 µg/L	114	73.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323266) - continued								
EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.004 µg/L	95.2	72.0	129
EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.004 µg/L	92.8	72.0	129
EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.004 µg/L	96.4	72.0	130
EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.004 µg/L	96.8	71.0	133
EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.004 µg/L	100	69.0	130
EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.004 µg/L	90.4	71.0	129
EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	118	69.0	133
EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	0.004 µg/L	105	72.0	134
EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	126	65.0	144
EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.004 µg/L	90.0	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323283)								
EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.0020	0.02 µg/L	109	73.0	129
EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.004 µg/L	103	72.0	129
EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.004 µg/L	98.4	72.0	129
EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.004 µg/L	105	72.0	130
EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.004 µg/L	120	71.0	133
EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.004 µg/L	84.4	69.0	130
EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.004 µg/L	97.2	71.0	129
EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	111	69.0	133
EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	0.004 µg/L	114	72.0	134
EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	106	65.0	144
EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.004 µg/L	92.0	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323290)								
EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.0020	0.02 µg/L	98.0	73.0	129
EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.004 µg/L	98.4	72.0	129
EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.004 µg/L	86.8	72.0	129
EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.004 µg/L	96.0	72.0	130
EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.004 µg/L	110	71.0	133
EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.004 µg/L	100	69.0	130
EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.004 µg/L	96.0	71.0	129
EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	89.6	69.0	133
EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	0.004 µg/L	102	72.0	134
EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	81.2	65.0	144
EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.004 µg/L	84.0	71.0	132

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323266)								
EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.004 µg/L	107	67.0	137
EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.01 µg/L	121	68.0	141
EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.01 µg/L	83.0	57.9	141
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.01 µg/L	90.9	63.3	134
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.01 µg/L	108	60.0	136
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.004 µg/L	100	65.0	136
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.004 µg/L	95.6	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323283)								
EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.004 µg/L	123	67.0	137
EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.01 µg/L	# 184	68.0	141
EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.01 µg/L	141	57.9	141
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.01 µg/L	107	63.3	134
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.01 µg/L	117	60.0	136
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.004 µg/L	102	65.0	136
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.004 µg/L	106	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323290)								
EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.004 µg/L	108	67.0	137
EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.01 µg/L	# 150	68.0	141
EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.01 µg/L	103	57.9	141
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.01 µg/L	104	63.3	134
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.01 µg/L	116	60.0	136
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.004 µg/L	102	65.0	136

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323290) - continued								
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.004 µg/L	90.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6323266)								
EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.00374 µg/L	99.2	63.0	143
EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.0038 µg/L	133	64.0	140
EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.00384 µg/L	119	67.0	138
EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.00386 µg/L	87.9	53.1	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6323283)								
EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.00374 µg/L	102	63.0	143
EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.0038 µg/L	112	64.0	140
EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.00384 µg/L	108	67.0	138
EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.00386 µg/L	99.5	53.1	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6323290)								
EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.00374 µg/L	94.5	63.0	143
EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.0038 µg/L	118	64.0	140
EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.00384 µg/L	105	67.0	138
EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.00386 µg/L	85.8	53.1	133

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6319064)							
EP2500647-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	112	70.4	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6319073)							
EP2500677-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	123	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 6319065)							
EP2500647-002	Anonymous	ED045G: Chloride	16887-00-6	200 mg/L	101	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6319071)							
EP2500677-002	Anonymous	ED045G: Chloride	16887-00-6	200 mg/L	108	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6323574)							
EP2500657-003	GBH01	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	103	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020F: Dissolved Metals by ICP-MS (QCLot: 6323574) - continued							
EP2500657-003	GBH01	EG020A-F: Cadmium	7440-43-9	0.05 mg/L	97.7	70.0	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.8	70.0	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	98.6	70.0	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	99.9	70.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	95.9	70.0	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	98.3	70.0	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100.0	70.0	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	107	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6323573)							
EP2500657-001	MW01	EG035F: Mercury	7439-97-6	0.005 mg/L	106	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6319206)							
EP2500657-002	MW02	EK055G: Ammonia as N	7664-41-7	1 mg/L	114	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6319210)							
EP2500650-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	118	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6341192)							
EP2501182-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	# 58.6	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6319205)							
EP2500657-002	MW02	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6319209)							
EP2500650-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	102	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6329982)							
EP2500657-001	MW01	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	92.3	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6329983)							
EP2500657-001	MW01	EK067G: Total Phosphorus as P	----	1 mg/L	93.3	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6319063)							
EP2500647-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	105	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6319072)							
EP2500677-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	100	70.0	130
EK085M: Sulfide as S2- (QCLot: 6326233)							
EP2500657-002	MW02	EK085: Sulfide as S2-	18496-25-8	1 mg/L	112	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6320610)							
EP2500657-012	QC510	EP080: C6 - C9 Fraction	----	240 µg/L	82.2	77.0	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6320625)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6320625) - continued							
EP2500657-002	MW02	EP080: C6 - C9 Fraction	----	240 µg/L	102	77.0	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6326250)							
EP2500657-005	GBH04	EP071: C10 - C14 Fraction	----	5676 µg/L	83.4	44.5	122
		EP071: C15 - C28 Fraction	----	10740 µg/L	98.5	55.1	143
		EP071: C29 - C36 Fraction	----	3044 µg/L	99.5	53.6	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6320610)							
EP2500657-012	QC510	EP080: C6 - C10 Fraction	C6_C10	290 µg/L	79.2	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6320625)							
EP2500657-002	MW02	EP080: C6 - C10 Fraction	C6_C10	290 µg/L	99.2	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6326250)							
EP2500657-005	GBH04	EP071: >C10 - C16 Fraction	----	7710 µg/L	88.6	44.5	122
		EP071: >C16 - C34 Fraction	----	10930 µg/L	98.6	55.1	143
		EP071: >C34 - C40 Fraction	----	1050 µg/L	87.5	53.6	128
EP080: BTEXN (QCLot: 6320610)							
EP2500657-012	QC510	EP080: Benzene	71-43-2	20 µg/L	92.6	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	105	73.5	126
EP080: BTEXN (QCLot: 6320625)							
EP2500657-002	MW02	EP080: Benzene	71-43-2	20 µg/L	102	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	107	73.5	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6323283)							
EP2500657-005	GBH04	EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00367 µg/L	71.8	70.0	130
		EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00355 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00376 µg/L	105	70.0	130
		EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00379 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00381 µg/L	106	70.0	130
		EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00371 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00385 µg/L	# 68.6	70.0	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323283)							
EP2500657-005	GBH04	EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.02 µg/L	72.8	70.0	130
		EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.004 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.004 µg/L	# Not Determined	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323283) - continued							
EP2500657-005	GBH04	EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.004 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.004 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.004 µg/L	93.6	70.0	130
		EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.004 µg/L	108	70.0	130
		EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.004 µg/L	116	70.0	130
		EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.004 µg/L	73.3	70.0	130
		EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.004 µg/L	# 58.0	70.0	130
		EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.004 µg/L	# 66.0	70.0	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323283)							
EP2500657-005	GBH04	EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.004 µg/L	96.8	70.0	130
		EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.01 µg/L	91.3	70.0	130
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.01 µg/L	86.5	70.0	130
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.01 µg/L	84.2	70.0	130
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.01 µg/L	101	70.0	130
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.004 µg/L	86.4	70.0	130
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.004 µg/L	113	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6323283)							
EP2500657-005	GBH04	EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00374 µg/L	111	70.0	130
		EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0038 µg/L	80.5	70.0	130
		EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00384 µg/L	129	70.0	130
		EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00386 µg/L	72.6	70.0	130

QUALITY CONTROL REPORT

Work Order	: **EP2500657**	Page	: 1 of 20
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 16-Jan-2025
Order number	: ----	Date Analysis Commenced	: 17-Jan-2025
C-O-C number	: ----	Issue Date	: 28-Jan-2025
Sampler	: Toby Spencer		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 14		
No. of samples analysed	: 14		

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, unless the sampling was conducted by ALS. 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*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA
Niamh Carthew	Inorganic Chemist	Perth Inorganics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 6327428)									
EP2500657-002	MW02	EA005-P: pH Value	----	0.01	pH Unit	7.85	7.83	0.3	0% - 20%
EP2500657-013	QC307	EA005-P: pH Value	----	0.01	pH Unit	5.90	5.79	1.9	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6327427)									
EP2500657-002	MW02	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1090	1090	0.1	0% - 20%
EP2500657-013	QC307	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	<1	0.0	No Limit
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6325074)									
EP2500601-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	427	422	1.1	0% - 20%
EP2500657-003	GBH01	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	611	599	2.0	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6326063)									
EP2500657-005	GBH04	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	939	956	1.8	0% - 20%
EP2500718-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	166000	179000	7.3	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6327429)									
EP2500657-002	MW02	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	408	405	0.6	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	408	405	0.6	0% - 20%
EP2500657-013	QC307	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED038A: Acidity (QC Lot: 6337285)									
EP2500657-001	MW01	ED038: Acidity as CaCO3	----	1	mg/L	16	16	0.0	0% - 50%
EP2500657-010	QC118	ED038: Acidity as CaCO3	----	1	mg/L	37	35	6.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6319064)									
EP2500654-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	5000	5110	2.0	0% - 20%
EP2500647-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	92	90	1.6	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6319073)									
EP2500677-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	39	45	14.6	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6319065)									
EP2500654-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	5	5	0.0	No Limit
EP2500647-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	108	111	2.2	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6319071)									
EP2500677-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	25	25	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6323571)									
EP2500635-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	15	16	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	29	29	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	330	325	1.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	18	18	0.0	0% - 50%
EP2500657-002	MW02	ED093F: Calcium	7440-70-2	1	mg/L	107	108	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	11	11	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	124	122	1.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6323574)									
EP2500657-002	MW02	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP2500677-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6323574) - continued									
EP2500677-001	Anonymous	EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.349	0.345	1.4	0% - 20%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	1.11	1.10	0.0	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 6323697)									
EP2500657-001	MW01	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP2500657-013	QC307	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6323573)									
EP2500635-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP2500657-008	GBH07	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6319206)									
EP2500438-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.50	0.50	0.0	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6319210)									
EP2500650-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.04	0.0	No Limit
EP2500657-006	GBH05	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.03	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6319205)									
EP2500596-008	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.47	0.46	0.0	0% - 20%
EP2500438-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6319209)									
EP2500650-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.93	1.93	0.0	0% - 20%
EP2500657-006	GBH05	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.44	1.43	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6329982)									
EP2500650-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.7	0.7	0.0	No Limit
EP2500657-010	QC118	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	6.9	7.7	10.7	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6329983)									
EP2500650-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.03	67.8	No Limit
EP2500657-010	QC118	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.08	0.06	32.3	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6319063)									
EP2500654-004	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.08	120	No Limit
EP2500647-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.01	0.01	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6319072)									
EP2500681-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP2500677-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK085M: Sulfide as S2- (QC Lot: 6326233)									
EP2500657-001	MW01	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP2500657-010	QC118	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6320610)									
EP2500657-011	QC509	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP2500698-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6320625)									
EP2500657-001	MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP2500657-013	QC307	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6326250)									
EP2500596-008	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	270	190	31.3	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP2500662-005	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6320610)									
EP2500657-011	QC509	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP2500698-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6320625)									
EP2500657-001	MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP2500657-013	QC307	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6326250)									
EP2500596-008	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	250	140	59.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP2500662-005	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080: BTEXN (QC Lot: 6320610)									
EP2500657-011	QC509	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 6320610) - continued									
EP2500657-011	QC509	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2500698-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 6320625)									
EP2500657-001	MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2500657-013	QC307	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6323283)									
EP2500657-005	GBH04	EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	0.0465	0.0453	2.6	0% - 20%
		EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	0.0140	0.0149	6.1	0% - 20%
		EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	0.0099	0.0096	3.5	0% - 50%
		EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	0.148	0.146	0.9	0% - 20%
		EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	0.0027	0.0025	8.9	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6323283) - continued									
EP2500657-005	GBH04	EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005 (0.0008)*	µg/L	<0.0008	<0.0008	0.0	No Limit
		EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	0.0027	0.0031	12.6	No Limit
EP2500701-003	Anonymous	EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	0.0177	0.0215	19.5	0% - 20%
		EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	0.0039	0.0044	11.5	No Limit
		EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	0.0014	0.0016	10.1	No Limit
		EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	0.0143	0.0166	15.3	0% - 20%
		EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.0006	24.5	No Limit
		EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	<0.0020	<0.0020	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6323283)									
EP2500657-005	GBH04	EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	0.0195	0.0190	2.3	0% - 20%
		EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	0.0159	0.0154	3.3	0% - 20%
		EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	0.0169	0.0158	7.0	0% - 20%
		EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	0.0606	0.0670	10.0	0% - 20%
		EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	0.0018	0.0016	8.9	No Limit
		EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005 (0.0008)*	µg/L	<0.0008	<0.0008	0.0	No Limit
		EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005 (0.0020)*	µg/L	<0.0020	<0.0020	0.0	No Limit
		EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002 (0.0039)*	µg/L	0.0276	0.0286	3.7	No Limit
EP2500701-003	Anonymous	EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005 (0.0008)*	µg/L	0.0032	0.0040	22.6	No Limit
		EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	0.0048	0.0054	11.4	0% - 50%
		EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	0.0026	0.0027	5.2	No Limit
		EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	0.0039	0.0047	18.9	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6323283) - continued									
EP2500701-003	Anonymous	EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002 (0.0040)*	µg/L	<0.0039	<0.0040	2.8	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 6323283)									
EP2500657-005	GBH04	EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP2500701-003	Anonymous	EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	<0.0005	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6323283)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6323283) - continued									
EP2500657-005	GBH04	EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	0.010	0.010	0.0	0% - 50%
		EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP2500701-003	Anonymous	EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	<0.001	0.0	No Limit
		EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	<0.001	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 6323283)									
EP2500657-005	GBH04	EP231X-SUT: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	µg/L	0.194	0.191	1.7	0% - 20%
		EP231X-SUT: Sum of PFAS (WA DER List)	----	0.0002	µg/L	0.359	0.362	0.8	0% - 20%
		EP231X-SUT: Sum of PFAS	----	0.0002	µg/L	0.376	0.379	0.7	0% - 20%
EP2500701-003	Anonymous	EP231X-SUT: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	µg/L	0.0320	0.0381	17.4	0% - 20%
		EP231X-SUT: Sum of PFAS (WA DER List)	----	0.0002	µg/L	0.0504	0.0593	16.2	0% - 20%
		EP231X-SUT: Sum of PFAS	----	0.0002	µg/L	0.0518	0.0615	17.1	0% - 20%

Method Blank (MB) and Laboratory Control Sample (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 Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6327428)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.5	102
				----	7 pH Unit	100	98.5	102
EA010P: Conductivity by PC Titrator (QCLot: 6327427)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	101	92.1	105
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6325074)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	101	80.0	120
				<10	293 mg/L	105	80.0	120
				<10	2470 mg/L	104	80.0	120
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6326063)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	96.1	80.0	120
				<10	293 mg/L	107	80.0	120
				<10	2470 mg/L	103	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 6327429)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	111	85.1	126
				<1	200 mg/L	103	90.5	111
ED038A: Acidity (QCLot: 6337285)								
ED038: Acidity as CaCO3	----	----	mg/L	----	20.3 mg/L	101	70.0	130
				----	405.5 mg/L	92.4	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6319064)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.3	89.9	112
				<1	500 mg/L	96.6	89.9	112
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6319073)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	101	89.9	112
				<1	500 mg/L	102	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 6319065)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	93.8	88.6	113
				<1	1000 mg/L	102	88.6	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 6319071)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	95.9	88.6	113
				<1	1000 mg/L	103	88.6	113
ED093F: Dissolved Major Cations (QCLot: 6323571)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	105	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	101	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	84.6	108
EG020F: Dissolved Metals by ICP-MS (QCLot: 6323574)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	106	90.2	111
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	90.3	113
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.0	89.7	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.8	87.3	107
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.6	88.8	109
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.7	88.9	108
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.8	89.4	106
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	99.0	87.6	106
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	104	91.1	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	87.2	108
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	102	83.8	102
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	89.5	112
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	92.8	89.9	120
EG020T: Total Metals by ICP-MS (QCLot: 6323697)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	102	91.6	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	# 91.5	95.0	132
EG035F: Dissolved Mercury by FIMS (QCLot: 6323573)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.005 mg/L	94.0	85.6	120
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6319206)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	100	86.2	111
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6319210)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	99.3	86.2	111
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6319205)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.7	90.5	110
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6319209)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	98.3	90.5	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6329982)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	94.6	80.0	115
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6329983)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	96.6	70.0	110
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6319063)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	109	89.4	109
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6319072)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	106	89.4	109
EK085M: Sulfide as S2- (QCLot: 6326233)								
EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	0.5 mg/L	96.2	84.1	115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6320610)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	90.1	73.6	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6320625)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	100	73.6	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6322158)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	5676 µg/L	69.7	39.3	103
EP071: C15 - C28 Fraction	----	100	µg/L	<100	10740 µg/L	85.4	47.2	122
EP071: C29 - C36 Fraction	----	50	µg/L	<50	3044 µg/L	75.0	42.5	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6326250)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	5676 µg/L	62.2	39.3	103
EP071: C15 - C28 Fraction	----	100	µg/L	<100	10740 µg/L	77.7	47.2	122
EP071: C29 - C36 Fraction	----	50	µg/L	<50	3044 µg/L	79.7	42.5	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6320610)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	87.6	73.9	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6320625)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	98.7	73.9	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6322158)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7710 µg/L	73.8	47.0	100
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	10930 µg/L	83.6	46.2	116
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1050 µg/L	70.2	24.7	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6326250)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7710 µg/L	67.0	47.0	100
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	10930 µg/L	78.2	46.2	116
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1050 µg/L	70.3	24.7	137
EP080: BTEXN (QCLot: 6320610)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6320610) - continued								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	88.1	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	95.9	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	98.1	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	96.7	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	98.9	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	101	77.0	118
EP080: BTEXN (QCLot: 6320625)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	99.1	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	96.0	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	102	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	101	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	98.9	77.0	118
EP131A: Organochlorine Pesticides (QCLot: 6327777)								
EP131A: Aldrin	309-00-2	0.01	µg/L	<0.010	1.1 µg/L	89.3	34.0	145
EP131A: alpha-BHC	319-84-6	0.01	µg/L	<0.010	1.1 µg/L	114	27.2	131
EP131A: beta-BHC	319-85-7	0.01	µg/L	<0.010	1.1 µg/L	94.7	28.6	133
EP131A: delta-BHC	319-86-8	0.01	µg/L	<0.010	1.1 µg/L	98.5	36.0	131
EP131A: 4.4`-DDD	72-54-8	0.01	µg/L	<0.010	1.1 µg/L	118	36.0	142
EP131A: 4.4`-DDE	72-55-9	0.01	µg/L	<0.010	1.1 µg/L	85.3	30.4	112
EP131A: 4.4`-DDT	50-29-3	0.01	µg/L	<0.010	1.1 µg/L	75.5	29.5	142
EP131A: Dieldrin	60-57-1	0.01	µg/L	<0.010	1.1 µg/L	112	28.1	122
EP131A: alpha-Endosulfan	959-98-8	0.01	µg/L	<0.010	1.1 µg/L	118	34.0	119
EP131A: beta-Endosulfan	33213-65-9	0.01	µg/L	<0.010	1.1 µg/L	106	31.6	128
EP131A: Endosulfan sulfate	1031-07-8	0.01	µg/L	<0.010	1.1 µg/L	110	35.0	159
EP131A: Endrin	72-20-8	0.01	µg/L	<0.010	1.1 µg/L	97.6	21.5	165
EP131A: Endosulfan (sum)	115-29-7	0.01	µg/L	<0.010	----	----	----	----
EP131A: Endrin aldehyde	7421-93-4	0.01	µg/L	<0.010	1.1 µg/L	95.3	22.7	123
EP131A: Endrin ketone	53494-70-5	0.01	µg/L	<0.010	1.1 µg/L	108	16.3	144
EP131A: Heptachlor	76-44-8	0.005	µg/L	<0.005	1.1 µg/L	109	33.0	160
EP131A: Heptachlor epoxide	1024-57-3	0.01	µg/L	<0.010	1.1 µg/L	82.5	33.0	117
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.01	µg/L	<0.010	1.1 µg/L	114	23.6	126
EP131A: gamma-BHC - (Lindane)	58-89-9	0.01	µg/L	<0.010	1.1 µg/L	115	28.7	134

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP131A: Organochlorine Pesticides (QCLot: 6327777) - continued								
EP131A: Methoxychlor	72-43-5	0.01	µg/L	<0.010	1.1 µg/L	95.2	29.5	150
EP131A: cis-Chlordane	5103-71-9	0.01	µg/L	<0.010	1.1 µg/L	111	27.0	116
EP131A: trans-Chlordane	5103-74-2	0.01	µg/L	<0.010	1.1 µg/L	102	31.2	119
EP131A: Total Chlordane (sum)	----	0.01	µg/L	<0.010	----	----	----	----
EP131A: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.01	µg/L	<0.010	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6323266)								
EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	<0.0020	0.00367 µg/L	79.3	70.0	130
EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.00354 µg/L	95.8	72.0	130
EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.00376 µg/L	105	71.0	127
EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.00381 µg/L	100	68.0	131
EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.00381 µg/L	104	69.0	134
EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	0.00371 µg/L	91.4	65.0	140
EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.00385 µg/L	70.2	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6323283)								
EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	<0.0020	0.00367 µg/L	95.9	70.0	130
EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.00354 µg/L	94.9	72.0	130
EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.00376 µg/L	104	71.0	127
EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.00381 µg/L	90.7	68.0	131
EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.00381 µg/L	104	69.0	134
EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	0.00371 µg/L	92.7	65.0	140
EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.00385 µg/L	75.6	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6323290)								
EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.002	µg/L	<0.0020	0.00367 µg/L	94.2	70.0	130
EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.00354 µg/L	91.3	72.0	130
EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.00376 µg/L	103	71.0	127
EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.00381 µg/L	98.3	68.0	131
EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.00381 µg/L	92.8	69.0	134
EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	0.00371 µg/L	93.6	65.0	140
EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.00385 µg/L	85.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323266)								
EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.0020	0.02 µg/L	114	73.0	129
EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.004 µg/L	95.2	72.0	129
EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.004 µg/L	92.8	72.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323266) - continued								
EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.004 µg/L	96.4	72.0	130
EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.004 µg/L	96.8	71.0	133
EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.004 µg/L	100	69.0	130
EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.004 µg/L	90.4	71.0	129
EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	118	69.0	133
EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	0.004 µg/L	105	72.0	134
EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	126	65.0	144
EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.004 µg/L	90.0	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323283)								
EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.0020	0.02 µg/L	109	73.0	129
EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.004 µg/L	103	72.0	129
EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.004 µg/L	98.4	72.0	129
EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.004 µg/L	105	72.0	130
EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.004 µg/L	120	71.0	133
EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.004 µg/L	84.4	69.0	130
EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.004 µg/L	97.2	71.0	129
EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	111	69.0	133
EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	0.004 µg/L	114	72.0	134
EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	106	65.0	144
EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.004 µg/L	92.0	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323290)								
EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.0020	0.02 µg/L	98.0	73.0	129
EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.004 µg/L	98.4	72.0	129
EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.004 µg/L	86.8	72.0	129
EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.004 µg/L	96.0	72.0	130
EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.004 µg/L	110	71.0	133
EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.004 µg/L	100	69.0	130
EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.004 µg/L	96.0	71.0	129
EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	89.6	69.0	133
EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	0.004 µg/L	102	72.0	134
EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.004 µg/L	81.2	65.0	144
EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.004 µg/L	84.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323266)								
EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.004 µg/L	107	67.0	137

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323266) - continued								
EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.01 µg/L	121	68.0	141
EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.01 µg/L	83.0	57.9	141
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.01 µg/L	90.9	63.3	134
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.01 µg/L	108	60.0	136
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.004 µg/L	100	65.0	136
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.004 µg/L	95.6	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323283)								
EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.004 µg/L	123	67.0	137
EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.01 µg/L	# 184	68.0	141
EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.01 µg/L	141	57.9	141
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.01 µg/L	107	63.3	134
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.01 µg/L	117	60.0	136
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.004 µg/L	102	65.0	136
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.004 µg/L	106	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323290)								
EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.004 µg/L	108	67.0	137
EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.01 µg/L	# 150	68.0	141
EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.01 µg/L	103	57.9	141
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.01 µg/L	104	63.3	134
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.01 µg/L	116	60.0	136
EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.004 µg/L	102	65.0	136

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323290) - continued								
EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.004 µg/L	90.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6323266)								
EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.00374 µg/L	99.2	63.0	143
EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.0038 µg/L	133	64.0	140
EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.00384 µg/L	119	67.0	138
EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.00386 µg/L	87.9	53.1	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6323283)								
EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.00374 µg/L	102	63.0	143
EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.0038 µg/L	112	64.0	140
EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.00384 µg/L	108	67.0	138
EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.00386 µg/L	99.5	53.1	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6323290)								
EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.00374 µg/L	94.5	63.0	143
EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.0038 µg/L	118	64.0	140
EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.00384 µg/L	105	67.0	138
EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.00386 µg/L	85.8	53.1	133

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6319064)							
EP2500647-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	112	70.4	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6319073)							
EP2500677-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	123	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 6319065)							
EP2500647-002	Anonymous	ED045G: Chloride	16887-00-6	200 mg/L	101	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6319071)							
EP2500677-002	Anonymous	ED045G: Chloride	16887-00-6	200 mg/L	108	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6323574)							
EP2500657-003	GBH01	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	103	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6323574) - continued							
EP2500657-003	GBH01	EG020A-F: Cadmium	7440-43-9	0.05 mg/L	97.7	70.0	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.8	70.0	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	98.6	70.0	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	99.9	70.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	95.9	70.0	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	98.3	70.0	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100.0	70.0	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	107	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6323573)							
EP2500657-001	MW01	EG035F: Mercury	7439-97-6	0.005 mg/L	106	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6319206)							
EP2500657-002	MW02	EK055G: Ammonia as N	7664-41-7	1 mg/L	114	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6319210)							
EP2500650-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	118	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6319205)							
EP2500657-002	MW02	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6319209)							
EP2500650-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	102	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6329982)							
EP2500657-001	MW01	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	92.3	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6329983)							
EP2500657-001	MW01	EK067G: Total Phosphorus as P	----	1 mg/L	93.3	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6319063)							
EP2500647-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	105	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6319072)							
EP2500677-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	100	70.0	130
EK085M: Sulfide as S2- (QCLot: 6326233)							
EP2500657-002	MW02	EK085: Sulfide as S2-	18496-25-8	1 mg/L	112	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6320610)							
EP2500657-012	QC510	EP080: C6 - C9 Fraction	----	240 µg/L	82.2	77.0	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6320625)							
EP2500657-002	MW02	EP080: C6 - C9 Fraction	----	240 µg/L	102	77.0	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6326250)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6326250) - continued							
EP2500657-005	GBH04	EP071: C10 - C14 Fraction	----	5676 µg/L	83.4	44.5	122
		EP071: C15 - C28 Fraction	----	10740 µg/L	98.5	55.1	143
		EP071: C29 - C36 Fraction	----	3044 µg/L	99.5	53.6	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6320610)							
EP2500657-012	QC510	EP080: C6 - C10 Fraction	C6_C10	290 µg/L	79.2	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6320625)							
EP2500657-002	MW02	EP080: C6 - C10 Fraction	C6_C10	290 µg/L	99.2	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6326250)							
EP2500657-005	GBH04	EP071: >C10 - C16 Fraction	----	7710 µg/L	88.6	44.5	122
		EP071: >C16 - C34 Fraction	----	10930 µg/L	98.6	55.1	143
		EP071: >C34 - C40 Fraction	----	1050 µg/L	87.5	53.6	128
EP080: BTEXN (QCLot: 6320610)							
EP2500657-012	QC510	EP080: Benzene	71-43-2	20 µg/L	92.6	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	105	73.5	126
EP080: BTEXN (QCLot: 6320625)							
EP2500657-002	MW02	EP080: Benzene	71-43-2	20 µg/L	102	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	107	73.5	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6323283)							
EP2500657-005	GBH04	EP231X-SUT: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.00367 µg/L	71.8	70.0	130
		EP231X-SUT: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00355 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00376 µg/L	105	70.0	130
		EP231X-SUT: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00379 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00381 µg/L	106	70.0	130
		EP231X-SUT: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00371 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00385 µg/L	# 68.6	70.0	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323283)							
EP2500657-005	GBH04	EP231X-SUT: Perfluorobutanoic acid (PFBA)	375-22-4	0.02 µg/L	72.8	70.0	130
		EP231X-SUT: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.004 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluorohexanoic acid (PFHxA)	307-24-4	0.004 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.004 µg/L	# Not Determined	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6323283) - continued							
EP2500657-005	GBH04	EP231X-SUT: Perfluorooctanoic acid (PFOA)	335-67-1	0.004 µg/L	# Not Determined	70.0	130
		EP231X-SUT: Perfluorononanoic acid (PFNA)	375-95-1	0.004 µg/L	93.6	70.0	130
		EP231X-SUT: Perfluorodecanoic acid (PFDA)	335-76-2	0.004 µg/L	108	70.0	130
		EP231X-SUT: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.004 µg/L	116	70.0	130
		EP231X-SUT: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.004 µg/L	73.3	70.0	130
		EP231X-SUT: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.004 µg/L	# 58.0	70.0	130
		EP231X-SUT: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.004 µg/L	# 66.0	70.0	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6323283)							
EP2500657-005	GBH04	EP231X-SUT: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.004 µg/L	96.8	70.0	130
		EP231X-SUT: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.01 µg/L	91.3	70.0	130
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.01 µg/L	86.5	70.0	130
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.01 µg/L	84.2	70.0	130
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.01 µg/L	101	70.0	130
		EP231X-SUT: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.004 µg/L	86.4	70.0	130
		EP231X-SUT: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.004 µg/L	113	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6323283)							
EP2500657-005	GBH04	EP231X-SUT: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00374 µg/L	111	70.0	130
		EP231X-SUT: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0038 µg/L	80.5	70.0	130
		EP231X-SUT: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00384 µg/L	129	70.0	130
		EP231X-SUT: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00386 µg/L	72.6	70.0	130

CERTIFICATE OF ANALYSIS

Work Order	: **EP2500657**	Page	: 1 of 24
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 16-Jan-2025 15:00
Order number	: ----	Date Analysis Commenced	: 17-Jan-2025
C-O-C number	: ----	Issue Date	: 28-Jan-2025 16:37
Sampler	: Toby Spencer		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 14		
No. of samples analysed	: 14		

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, unless the sampling was conducted by ALS. 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*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA
Niamh Carthew	Inorganic Chemist	Perth Inorganics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EP231X-SUT: High LCS recovery deemed acceptable as associated analyte "MeFOSA" is <LOR on all linked samples.
- EG020: LCS recovery for Fe falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required.
- EP231X-SUT: LOR has been raised for particular analytes on certain samples due to matrix interference, confirmed via re-extraction and re-analysis.
- EP231X-SUT: Poor matrix spike recovery for sample "EP25000657-005" due to matrix interference, confirmed via re-extraction and re-analysis.
- EG020A-T: Total Aluminium and Iron results for samples #5 and #10 have been confirmed by re-preparation and re-analysis.
- TDS by method EA-015 may bias high for samples #6 and #7 due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	MW01	MW02	GBH01	GBH03	GBH04
			Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit	EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.97**	**7.85**	**7.99**	**7.90**	**7.80**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**911**	**1090**	**1050**	**987**	**1530**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**517**	**640**	**611**	**552**	**939**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**286**	**408**	**348**	**305**	**410**
Total Alkalinity as CaCO3	----	1	mg/L	**286**	**408**	**348**	**305**	**410**
ED038A: Acidity								
Acidity as CaCO3	----	1	mg/L	**16**	**33**	**19**	**21**	**37**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**43**	**53**	**65**	**43**	**191**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**111**	**120**	**130**	**145**	**197**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**105**	**107**	**74**	**97**	**104**
Magnesium	7439-95-4	1	mg/L	**18**	**11**	**8**	**10**	**24**
Sodium	7440-23-5	1	mg/L	**62**	**124**	**145**	**97**	**181**
Potassium	7440-09-7	1	mg/L	**4**	**5**	**8**	**4**	**22**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	7440-38-2	0.001	mg/L	**0.001**	<0.001	**0.002**	**0.002**	**0.003**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	MW01	MW02	GBH01	GBH03	GBH04
			Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit	EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**0.003**
Nickel	7440-02-0	0.001	mg/L	**0.001**	<0.001	<0.001	<0.001	**0.004**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	**0.005**	<0.005	<0.005	<0.005	<0.005
Manganese	7439-96-5	0.001	mg/L	<0.001	**0.005**	**0.004**	<0.001	**0.538**
Molybdenum	7439-98-7	0.001	mg/L	**0.002**	**0.003**	**0.006**	**0.005**	**0.005**
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.02**	**0.06**	**0.01**	**0.07**	**1.61**
Iron	7439-89-6	0.05	mg/L	<0.05	**0.10**	<0.05	**0.06**	**1.78**
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	**0.46**	<0.01	**6.41**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**8.62**	**3.86**	**2.05**	**2.67**	**0.21**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.8**	**0.5**	**0.8**	**0.5**	**6.9**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**9.4**	**4.4**	**2.8**	**3.2**	**7.1**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.02**	**0.03**	**0.04**	**0.02**	**0.06**
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	**0.01**	<0.01	**0.02**	**0.02**	<0.01
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EN055: Ionic Balance								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	MW01	MW02	GBH01	GBH03	GBH04
			Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit	EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
				Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued								
ø Total Anions	----	0.01	meq/L	**9.74**	**12.6**	**12.0**	**11.1**	**17.7**
ø Total Cations	----	0.01	meq/L	**9.52**	**11.8**	**10.9**	**9.98**	**15.6**
ø Ionic Balance	----	0.01	%	**1.14**	**3.58**	**4.86**	**5.20**	**6.38**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
delta-BHC	319-86-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDD	72-54-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDE	72-55-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDT	50-29-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Endosulfan (sum)**	115-29-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	76-44-8	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC - (Lindane)	58-89-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Total Chlordane (sum)**	----	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0020	µg/L		<0.0020	<0.0020	<0.0020	<0.0020	**0.0027**
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		**0.0069**	**0.0045**	**0.0092**	**0.0014**	**0.0140**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		**0.0059**	**0.0030**	**0.0053**	**0.0008**	**0.0099**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**0.0344**	**0.0097**	**0.0281**	**0.0015**	**0.148**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		**0.0013**	<0.0005	**0.0006**	<0.0005	**0.0027**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**0.0325**	**0.0014**	**0.0207**	**0.0004**	**0.0465**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0008
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		**0.0128**	<0.0020	**0.0053**	<0.0020	**0.0276**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		**0.0226**	<0.0005	<0.0005	<0.0005	**0.0195**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		**0.0078**	<0.0005	<0.0005	<0.0005	**0.0169**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		**0.0176**	<0.0005	<0.0005	<0.0005	**0.0159**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		**0.0081**	<0.0005	**0.0009**	<0.0005	**0.0606**
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	**0.0018**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0008
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0020
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		<0.001	<0.001	<0.001	**0.002**	**0.010**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		**0.0669**	**0.0111**	**0.0488**	**0.0019**	**0.194**
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		**0.143**	**0.0156**	**0.0642**	**0.0053**	**0.359**
^ **Sum of PFAS**	----	0.0002	µg/L		**0.150**	**0.0186**	**0.0701**	**0.0061**	**0.376**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**102**	**100**	**103**	**106**	**101**
Toluene-D8	2037-26-5	2	%		**98.1**	**101**	**105**	**100**	**99.2**
4-Bromofluorobenzene	460-00-4	2	%		**97.7**	**99.3**	**102**	**99.6**	**99.0**
EP131S: OC Pesticide Surrogate									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EP131S: OC Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.010	%		**117**	**105**	**114**	**90.7**	**99.2**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		**116**	**114**	**103**	**101**	**108**
13C8-PFOA	----	0.0005	%		**107**	**107**	**113**	**114**	**108**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
			Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit	EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.42**	**6.37**	**7.25**	**6.53**	**7.72**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**245**	**198**	**498**	**213**	**1520**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**245**	**167**	**302**	**152**	**932**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**14**	**28**	**89**	**38**	**407**
Total Alkalinity as CaCO3	----	1	mg/L	**14**	**28**	**89**	**38**	**407**
ED038A: Acidity								
Acidity as CaCO3	----	1	mg/L	**22**	**26**	**20**	**40**	**37**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**27**	**33**	**64**	**64**	**191**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**42**	**25**	**75**	**17**	**198**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**14**	**5**	**43**	**12**	**104**
Magnesium	7439-95-4	1	mg/L	**3**	**11**	**16**	**10**	**25**
Sodium	7440-23-5	1	mg/L	**29**	**24**	**29**	**12**	**174**
Potassium	7440-09-7	1	mg/L	**3**	**4**	**8**	**4**	**22**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.05**	**0.08**	**0.03**	**0.18**	<0.01
Arsenic	7440-38-2	0.001	mg/L	<0.001	**0.001**	<0.001	<0.001	**0.004**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued									
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**0.003**
Nickel	7440-02-0	0.001	mg/L		**0.001**	**0.001**	<0.001	**0.001**	**0.004**
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		<0.005	**4.15**	<0.005	**0.005**	<0.005
Manganese	7439-96-5	0.001	mg/L		**0.014**	**0.029**	**0.031**	**0.069**	**0.534**
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**0.005**
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Iron	7439-89-6	0.05	mg/L		**0.29**	**1.47**	**0.11**	**1.69**	<0.05
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**8.19**	**8.87**	**0.48**	**0.91**	**0.96**
Iron	7439-89-6	0.05	mg/L		**2.54**	**3.90**	**1.21**	**1.91**	**1.08**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.02**	**0.12**	**0.03**	**0.09**	**7.14**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**1.44**	**0.06**	**5.18**	**1.31**	**0.22**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**0.6**	**0.8**	**0.8**	**0.5**	**6.9**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**2.0**	**0.9**	**6.0**	**1.8**	**7.1**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.06**	**0.11**	<0.01	**0.02**	**0.08**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EK085M: Sulfide as S2-									
Sulfide as S2-	18496-25-8	0.1	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1
EN055: Ionic Balance									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued									
ø Total Anions	----	0.01	meq/L		2.13	1.96	----	----	----
ø Total Anions	----	0.01	meq/L		----	----	5.23	2.57	17.7
ø Total Cations	----	0.01	meq/L		----	----	----	2.16	----
ø Total Cations	----	0.01	meq/L		2.28	2.30	4.93	----	15.4
ø Ionic Balance	----	0.01	%		3.49	8.09	----	8.72	----
ø Ionic Balance	----	0.01	%		----	----	2.93	----	7.00
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	120	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	210	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	330	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	280	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	140	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	420	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
delta-BHC	319-86-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDD	72-54-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDE	72-55-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDT	50-29-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Endosulfan (sum)**	115-29-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	76-44-8	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC - (Lindane)	58-89-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
trans-Chlordane	5103-74-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Total Chlordane (sum)**	----	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0020	µg/L		<0.0020	<0.0020	<0.0020	<0.0020	**0.0032**
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		**0.0006**	<0.0005	<0.0005	<0.0005	**0.0146**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	**0.0088**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**0.0097**	<0.0005	**0.0007**	<0.0005	**0.145**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	**0.0022**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**0.0014**	**0.0008**	**0.0025**	<0.0002	**0.0422**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		<0.0040	<0.0039	<0.0040	<0.0040	**0.0257**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		**0.0038**	<0.0008	<0.0005	<0.0005	**0.0185**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		**0.0033**	<0.0005	<0.0005	<0.0005	**0.0158**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		**0.0050**	<0.0005	<0.0005	<0.0005	**0.0152**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		**0.0007**	**0.0005**	<0.0005	<0.0005	**0.0534**
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	**0.0016**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	**0.011**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		**0.0111**	**0.0008**	**0.0032**	<0.0002	**0.187**
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		**0.0245**	**0.0013**	**0.0032**	<0.0002	**0.341**
^ **Sum of PFAS**	----	0.0002	µg/L		**0.0245**	**0.0013**	**0.0032**	<0.0002	**0.357**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		100	103	101	102	102
Toluene-D8	2037-26-5	2	%		101	102	99.5	98.5	101
4-Bromofluorobenzene	460-00-4	2	%		104	102	100	96.3	99.2
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.010	%		98.0	82.0	95.7	98.0	111
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		95.0	93.7	108	103	103
13C8-PFOA	----	0.0005	%		105	113	107	122	107

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC509	QC510	QC307	QC308	----
			Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit	EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	**5.90**	**6.05**	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	<1	<1	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	----	<10	<10	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	<1	<1	----
Total Alkalinity as CaCO3	----	1	mg/L	----	----	<1	<1	----
ED038A: Acidity								
Acidity as CaCO3	----	1	mg/L	----	----	**2**	**2**	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	<1	<1	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	<1	<1	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	<1	<1	----
Magnesium	7439-95-4	1	mg/L	----	----	<1	<1	----
Sodium	7440-23-5	1	mg/L	----	----	<1	<1	----
Potassium	7440-09-7	1	mg/L	----	----	<1	<1	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	<0.01	<0.01	----
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	<0.001	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Cobalt	7440-48-4	0.001	mg/L		----	----	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L		----	----	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L		----	----	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L		----	----	<0.005	<0.005	----
Manganese	7439-96-5	0.001	mg/L		----	----	<0.001	<0.001	----
Molybdenum	7439-98-7	0.001	mg/L		----	----	<0.001	<0.001	----
Selenium	7782-49-2	0.01	mg/L		----	----	<0.01	<0.01	----
Iron	7439-89-6	0.05	mg/L		----	----	<0.05	<0.05	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		----	----	<0.01	<0.01	----
Iron	7439-89-6	0.05	mg/L		----	----	<0.05	<0.05	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	----	<0.0001	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		----	----	<0.01	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		----	----	<0.01	<0.01	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		----	----	<0.1	<0.1	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		----	----	<0.1	<0.1	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		----	----	<0.01	<0.01	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		----	----	<0.01	<0.01	----
EK085M: Sulfide as S2-									
Sulfide as S2-	18496-25-8	0.1	mg/L		----	----	<0.1	<0.1	----
EN055: Ionic Balance									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EN055: Ionic Balance - Continued									
ø Total Anions	----	0.01	meq/L		----	----	<0.01	<0.01	----
ø Total Cations	----	0.01	meq/L		----	----	<0.01	<0.01	----
ø Ionic Balance	----	0.01	%		----	----	<0.01	<0.01	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L		----	----	<50	<50	----
C15 - C28 Fraction	----	100	µg/L		----	----	<100	<100	----
C29 - C36 Fraction	----	50	µg/L		----	----	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		----	----	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L		----	----	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L		----	----	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L		----	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		----	----	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		----	----	<100	<100	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	----
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	----
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		----	----	<0.010	<0.010	----
alpha-BHC	319-84-6	0.010	µg/L		----	----	<0.010	<0.010	----
beta-BHC	319-85-7	0.010	µg/L		----	----	<0.010	<0.010	----
delta-BHC	319-86-8	0.010	µg/L		----	----	<0.010	<0.010	----
4.4`-DDD	72-54-8	0.010	µg/L		----	----	<0.010	<0.010	----
4.4`-DDE	72-55-9	0.010	µg/L		----	----	<0.010	<0.010	----
4.4`-DDT	50-29-3	0.010	µg/L		----	----	<0.010	<0.010	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.010	µg/L		----	----	<0.010	<0.010	----
Dieldrin	60-57-1	0.010	µg/L		----	----	<0.010	<0.010	----
alpha-Endosulfan	959-98-8	0.010	µg/L		----	----	<0.010	<0.010	----
beta-Endosulfan	33213-65-9	0.010	µg/L		----	----	<0.010	<0.010	----
Endosulfan sulfate	1031-07-8	0.010	µg/L		----	----	<0.010	<0.010	----
^ **Endosulfan (sum)**	115-29-7	0.010	µg/L		----	----	<0.010	<0.010	----
Endrin	72-20-8	0.010	µg/L		----	----	<0.010	<0.010	----
Endrin aldehyde	7421-93-4	0.010	µg/L		----	----	<0.010	<0.010	----
Endrin ketone	53494-70-5	0.010	µg/L		----	----	<0.010	<0.010	----
Heptachlor	76-44-8	0.005	µg/L		----	----	<0.005	<0.005	----
Heptachlor epoxide	1024-57-3	0.010	µg/L		----	----	<0.010	<0.010	----
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		----	----	<0.010	<0.010	----
gamma-BHC - (Lindane)	58-89-9	0.010	µg/L		----	----	<0.010	<0.010	----
Methoxychlor	72-43-5	0.010	µg/L		----	----	<0.010	<0.010	----
cis-Chlordane	5103-71-9	0.010	µg/L		----	----	<0.010	<0.010	----
trans-Chlordane	5103-74-2	0.010	µg/L		----	----	<0.010	<0.010	----
^ **Total Chlordane (sum)**	----	0.010	µg/L		----	----	<0.010	<0.010	----
Oxychlordane	27304-13-8	0.010	µg/L		----	----	<0.010	<0.010	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.010	µg/L		----	----	<0.010	<0.010	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC509	QC510	QC307	QC308	----
			Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit	EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
				Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0020	µg/L	<0.0020	<0.0020	<0.0020	<0.0020	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L	<0.0020	<0.0020	<0.0020	<0.0020	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	----
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		<0.0002	<0.0002	<0.0002	<0.0002	----
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		<0.0002	<0.0002	<0.0002	<0.0002	----
^ **Sum of PFAS**	----	0.0002	µg/L		<0.0002	<0.0002	<0.0002	<0.0002	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**85.7**	**83.1**	**102**	**106**	----
Toluene-D8	2037-26-5	2	%		**99.8**	**98.0**	**98.1**	**104**	----
4-Bromofluorobenzene	460-00-4	2	%		**101**	**101**	**93.8**	**105**	----
EP131S: OC Pesticide Surrogate									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC509	QC510	QC307	QC308	----
			Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit	EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
				Result	Result	Result	Result	----
EP131S: OC Pesticide Surrogate - Continued								
Dibromo-DDE	21655-73-2	0.010	%	----	----	86.9	101	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0005	%	116	106	99.9	101	----
13C8-PFOA	----	0.0005	%	109	107	114	101	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	14	166
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP131A: Organochlorine Pesticides

(WATER) EP131S: OC Pesticide Surrogate

CERTIFICATE OF ANALYSIS

Work Order	: **EP2500657**	Page	: 1 of 24
Amendment	: **1**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: PAUL MONACO	Contact	: Kawen Jandu
Address	: LEVEL 18, 140 ST GEORGES TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: P21560 MRWA Kwinana DSI	Date Samples Received	: 16-Jan-2025 15:00
Order number	: ----	Date Analysis Commenced	: 17-Jan-2025
C-O-C number	: ----	Issue Date	: 30-Jan-2025 15:38
Sampler	: Toby Spencer		
Site	: Anketell Road		
Quote number	: EP24SENVER0010		
No. of samples received	: 14		
No. of samples analysed	: 14		

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, unless the sampling was conducted by ALS. 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*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA
Niamh Carthew	Inorganic Chemist	Perth Inorganics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 Contract 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.

- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EP231X-SUT: High LCS recovery deemed acceptable as associated analyte "MeFOSA" is <LOR on all linked samples.
- EG020: LCS recovery for Fe falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required.
- EP231X-SUT: LOR has been raised for particular analytes on certain samples due to matrix interference, confirmed via re-extraction and re-analysis.
- EP231X-SUT: Poor matrix spike recovery for sample "EP25000657-005" due to matrix interference, confirmed via re-extraction and re-analysis.
- EG020A-T: Total Aluminium and Iron results for samples #5 and #10 have been confirmed by re-preparation and re-analysis.
- EK057G (Nitrite as N): Poor matrix spike recovery for sample EP2501182-002 due to possible sample matrix interference. Confirmed by re-preparation of and re-analysis of the spike.
- TDS by method EA-015 may bias high for samples #6 and #7 due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Amendment (29/01/2025): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EK058G for samples EP2500657_001/002/003/004/005/006/007/008/009/010/013/014.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	MW01	MW02	GBH01	GBH03	GBH04
			Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit	EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.97**	**7.85**	**7.99**	**7.90**	**7.80**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**911**	**1090**	**1050**	**987**	**1530**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**517**	**640**	**611**	**552**	**939**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**286**	**408**	**348**	**305**	**410**
Total Alkalinity as CaCO3	----	1	mg/L	**286**	**408**	**348**	**305**	**410**
ED038A: Acidity								
Acidity as CaCO3	----	1	mg/L	**16**	**33**	**19**	**21**	**37**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**43**	**53**	**65**	**43**	**191**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**111**	**120**	**130**	**145**	**197**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**105**	**107**	**74**	**97**	**104**
Magnesium	7439-95-4	1	mg/L	**18**	**11**	**8**	**10**	**24**
Sodium	7440-23-5	1	mg/L	**62**	**124**	**145**	**97**	**181**
Potassium	7440-09-7	1	mg/L	**4**	**5**	**8**	**4**	**22**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	7440-38-2	0.001	mg/L	**0.001**	<0.001	**0.002**	**0.002**	**0.003**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued									
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**0.003**
Nickel	7440-02-0	0.001	mg/L		**0.001**	<0.001	<0.001	<0.001	**0.004**
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		**0.005**	<0.005	<0.005	<0.005	<0.005
Manganese	7439-96-5	0.001	mg/L		<0.001	**0.005**	**0.004**	<0.001	**0.538**
Molybdenum	7439-98-7	0.001	mg/L		**0.002**	**0.003**	**0.006**	**0.005**	**0.005**
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.02**	**0.06**	**0.01**	**0.07**	**1.61**
Iron	7439-89-6	0.05	mg/L		<0.05	**0.10**	<0.05	**0.06**	**1.78**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		<0.01	<0.01	**0.46**	<0.01	**6.41**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	**0.01**	<0.01	**0.02**
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**8.62**	**3.86**	**2.04**	**2.67**	**0.19**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**8.62**	**3.86**	**2.05**	**2.67**	**0.21**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**0.8**	**0.5**	**0.8**	**0.5**	**6.9**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**9.4**	**4.4**	**2.8**	**3.2**	**7.1**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.02**	**0.03**	**0.04**	**0.02**	**0.06**
EK071G: Reactive Phosphorus as P by discrete analyser									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EK071G: Reactive Phosphorus as P by discrete analyser - Continued									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		**0.01**	<0.01	**0.02**	**0.02**	<0.01
EK085M: Sulfide as S2-									
Sulfide as S2-	18496-25-8	0.1	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**9.74**	**12.6**	**12.0**	**11.1**	**17.7**
ø Total Cations	----	0.01	meq/L		**9.52**	**11.8**	**10.9**	**9.98**	**15.6**
ø Ionic Balance	----	0.01	%		**1.14**	**3.58**	**4.86**	**5.20**	**6.38**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	<100	<100	<100	<100
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
delta-BHC	319-86-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDD	72-54-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDE	72-55-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDT	50-29-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-0-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ Endosulfan (sum)	115-29-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	76-44-8	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC - (Lindane)	58-89-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
cis-Chlordane	5103-71-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Total Chlordane (sum)**	----	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0020	µg/L		<0.0020	<0.0020	<0.0020	<0.0020	**0.0027**
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		**0.0069**	**0.0045**	**0.0092**	**0.0014**	**0.0140**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		**0.0059**	**0.0030**	**0.0053**	**0.0008**	**0.0099**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**0.0344**	**0.0097**	**0.0281**	**0.0015**	**0.148**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		**0.0013**	<0.0005	**0.0006**	<0.0005	**0.0027**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**0.0325**	**0.0014**	**0.0207**	**0.0004**	**0.0465**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0008
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		**0.0128**	<0.0020	**0.0053**	<0.0020	**0.0276**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		**0.0226**	<0.0005	<0.0005	<0.0005	**0.0195**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		**0.0078**	<0.0005	<0.0005	<0.0005	**0.0169**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		**0.0176**	<0.0005	<0.0005	<0.0005	**0.0159**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		**0.0081**	<0.0005	**0.0009**	<0.0005	**0.0606**
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	**0.0018**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0008
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0020
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		<0.001	<0.001	<0.001	**0.002**	**0.010**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		**0.0669**	**0.0111**	**0.0488**	**0.0019**	**0.194**
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		**0.143**	**0.0156**	**0.0642**	**0.0053**	**0.359**
^ **Sum of PFAS**	----	0.0002	µg/L		**0.150**	**0.0186**	**0.0701**	**0.0061**	**0.376**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01	MW02	GBH01	GBH03	GBH04
				Sampling date / time	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-001	EP2500657-002	EP2500657-003	EP2500657-004	EP2500657-005
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		102	100	103	106	101
Toluene-D8	2037-26-5	2	%		98.1	101	105	100	99.2
4-Bromofluorobenzene	460-00-4	2	%		97.7	99.3	102	99.6	99.0
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.010	%		117	105	114	90.7	99.2
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		116	114	103	101	108
13C8-PFOA	----	0.0005	%		107	107	113	114	108

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		6.42	6.37	7.25	6.53	7.72
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		245	198	498	213	1520
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		245	167	302	152	932
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		14	28	89	38	407
Total Alkalinity as CaCO3	----	1	mg/L		14	28	89	38	407
ED038A: Acidity									
Acidity as CaCO3	----	1	mg/L		22	26	20	40	37
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		27	33	64	64	191
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		42	25	75	17	198
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		14	5	43	12	104
Magnesium	7439-95-4	1	mg/L		3	11	16	10	25
Sodium	7440-23-5	1	mg/L		29	24	29	12	174
Potassium	7440-09-7	1	mg/L		3	4	8	4	22
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.05	0.08	0.03	0.18	<0.01
Arsenic	7440-38-2	0.001	mg/L		<0.001	0.001	<0.001	<0.001	0.004
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued									
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**0.003**
Nickel	7440-02-0	0.001	mg/L		**0.001**	**0.001**	<0.001	**0.001**	**0.004**
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		<0.005	**4.15**	<0.005	**0.005**	<0.005
Manganese	7439-96-5	0.001	mg/L		**0.014**	**0.029**	**0.031**	**0.069**	**0.534**
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**0.005**
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Iron	7439-89-6	0.05	mg/L		**0.29**	**1.47**	**0.11**	**1.69**	<0.05
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**8.19**	**8.87**	**0.48**	**0.91**	**0.96**
Iron	7439-89-6	0.05	mg/L		**2.54**	**3.90**	**1.21**	**1.91**	**1.08**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.02**	**0.12**	**0.03**	**0.09**	**7.14**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.02**	<0.01	<0.01	<0.01	**0.02**
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**1.42**	**0.06**	**5.18**	**1.31**	**0.20**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**1.44**	**0.06**	**5.18**	**1.31**	**0.22**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**0.6**	**0.8**	**0.8**	**0.5**	**6.9**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**2.0**	**0.9**	**6.0**	**1.8**	**7.1**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.06**	**0.11**	<0.01	**0.02**	**0.08**
EK071G: Reactive Phosphorus as P by discrete analyser									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EK071G: Reactive Phosphorus as P by discrete analyser - Continued									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EK085M: Sulfide as S2-									
Sulfide as S2-	18496-25-8	0.1	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**2.13**	**1.96**	**----**	**----**	**----**
ø Total Anions	----	0.01	meq/L		**----**	**----**	**5.23**	**2.57**	**17.7**
ø Total Cations	----	0.01	meq/L		**----**	**----**	**----**	**2.16**	**----**
ø Total Cations	----	0.01	meq/L		**2.28**	**2.30**	**4.93**	**----**	**15.4**
ø Ionic Balance	----	0.01	%		**3.49**	**8.09**	**----**	**8.72**	**----**
ø Ionic Balance	----	0.01	%		**----**	**----**	**2.93**	**----**	**7.00**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	**120**	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	**210**	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	**330**	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	**280**	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	**140**	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	**420**	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
delta-BHC	319-86-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDD	72-54-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDE	72-55-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
4.4`-DDT	50-29-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Endosulfan (sum)**	115-29-7	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	76-44-8	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC - (Lindane)	58-89-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Total Chlordane (sum)**	----	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0020	µg/L		<0.0020	<0.0020	<0.0020	<0.0020	**0.0032**
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		**0.0006**	<0.0005	<0.0005	<0.0005	**0.0146**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	**0.0088**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		**0.0097**	<0.0005	**0.0007**	<0.0005	**0.145**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	**0.0022**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		**0.0014**	**0.0008**	**0.0025**	<0.0002	**0.0422**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		<0.0040	<0.0039	<0.0040	<0.0040	**0.0257**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		**0.0038**	<0.0008	<0.0005	<0.0005	**0.0185**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		**0.0033**	<0.0005	<0.0005	<0.0005	**0.0158**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		**0.0050**	<0.0005	<0.0005	<0.0005	**0.0152**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		**0.0007**	**0.0005**	<0.0005	<0.0005	**0.0534**
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	**0.0016**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	**0.011**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GBH05	GBH06r	GBH07	GBH08	QC118
				Sampling date / time	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00	16-Jan-2025 00:00
Compound	CAS Number	LOR	Unit		EP2500657-006	EP2500657-007	EP2500657-008	EP2500657-009	EP2500657-010
					Result	Result	Result	Result	Result
EP231P: PFAS Sums									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L		**0.0111**	**0.0008**	**0.0032**	<0.0002	**0.187**
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L		**0.0245**	**0.0013**	**0.0032**	<0.0002	**0.341**
^ **Sum of PFAS**	----	0.0002	µg/L		**0.0245**	**0.0013**	**0.0032**	<0.0002	**0.357**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**100**	**103**	**101**	**102**	**102**
Toluene-D8	2037-26-5	2	%		**101**	**102**	**99.5**	**98.5**	**101**
4-Bromofluorobenzene	460-00-4	2	%		**104**	**102**	**100**	**96.3**	**99.2**
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.010	%		**98.0**	**82.0**	**95.7**	**98.0**	**111**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		**95.0**	**93.7**	**108**	**103**	**103**
13C8-PFOA	----	0.0005	%		**105**	**113**	**107**	**122**	**107**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		----	----	**5.90**	**6.05**	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		----	----	<1	<1	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		----	----	<10	<10	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		----	----	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		----	----	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		----	----	<1	<1	----
Total Alkalinity as CaCO3	----	1	mg/L		----	----	<1	<1	----
ED038A: Acidity									
Acidity as CaCO3	----	1	mg/L		----	----	**2**	**2**	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		----	----	<1	<1	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		----	----	<1	<1	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		----	----	<1	<1	----
Magnesium	7439-95-4	1	mg/L		----	----	<1	<1	----
Sodium	7440-23-5	1	mg/L		----	----	<1	<1	----
Potassium	7440-09-7	1	mg/L		----	----	<1	<1	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		----	----	<0.01	<0.01	----
Arsenic	7440-38-2	0.001	mg/L		----	----	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L		----	----	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L		----	----	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L		----	----	<0.001	<0.001	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Cobalt	7440-48-4	0.001	mg/L		----	----	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L		----	----	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L		----	----	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L		----	----	<0.005	<0.005	----
Manganese	7439-96-5	0.001	mg/L		----	----	<0.001	<0.001	----
Molybdenum	7439-98-7	0.001	mg/L		----	----	<0.001	<0.001	----
Selenium	7782-49-2	0.01	mg/L		----	----	<0.01	<0.01	----
Iron	7439-89-6	0.05	mg/L		----	----	<0.05	<0.05	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		----	----	<0.01	<0.01	----
Iron	7439-89-6	0.05	mg/L		----	----	<0.05	<0.05	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	----	<0.0001	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		----	----	<0.01	<0.01	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		----	----	<0.01	<0.01	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		----	----	<0.01	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		----	----	<0.01	<0.01	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		----	----	<0.1	<0.1	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		----	----	<0.1	<0.1	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		----	----	<0.01	<0.01	----
EK071G: Reactive Phosphorus as P by discrete analyser									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EK071G: Reactive Phosphorus as P by discrete analyser - Continued									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		----	----	<0.01	<0.01	----
EK085M: Sulfide as S2-									
Sulfide as S2-	18496-25-8	0.1	mg/L		----	----	<0.1	<0.1	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		----	----	<0.01	<0.01	----
ø Total Cations	----	0.01	meq/L		----	----	<0.01	<0.01	----
ø Ionic Balance	----	0.01	%		----	----	<0.01	<0.01	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L		----	----	<50	<50	----
C15 - C28 Fraction	----	100	µg/L		----	----	<100	<100	----
C29 - C36 Fraction	----	50	µg/L		----	----	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		----	----	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L		----	----	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L		----	----	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L		----	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		----	----	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		----	----	<100	<100	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EP080: BTEXN - Continued									
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	<2	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	----
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		----	----	<0.010	<0.010	----
alpha-BHC	319-84-6	0.010	µg/L		----	----	<0.010	<0.010	----
beta-BHC	319-85-7	0.010	µg/L		----	----	<0.010	<0.010	----
delta-BHC	319-86-8	0.010	µg/L		----	----	<0.010	<0.010	----
4.4`-DDD	72-54-8	0.010	µg/L		----	----	<0.010	<0.010	----
4.4`-DDE	72-55-9	0.010	µg/L		----	----	<0.010	<0.010	----
4.4`-DDT	50-29-3	0.010	µg/L		----	----	<0.010	<0.010	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-2	0.010	µg/L		----	----	<0.010	<0.010	----
Dieldrin	60-57-1	0.010	µg/L		----	----	<0.010	<0.010	----
alpha-Endosulfan	959-98-8	0.010	µg/L		----	----	<0.010	<0.010	----
beta-Endosulfan	33213-65-9	0.010	µg/L		----	----	<0.010	<0.010	----
Endosulfan sulfate	1031-07-8	0.010	µg/L		----	----	<0.010	<0.010	----
^ **Endosulfan (sum)**	115-29-7	0.010	µg/L		----	----	<0.010	<0.010	----
Endrin	72-20-8	0.010	µg/L		----	----	<0.010	<0.010	----
Endrin aldehyde	7421-93-4	0.010	µg/L		----	----	<0.010	<0.010	----
Endrin ketone	53494-70-5	0.010	µg/L		----	----	<0.010	<0.010	----
Heptachlor	76-44-8	0.005	µg/L		----	----	<0.005	<0.005	----
Heptachlor epoxide	1024-57-3	0.010	µg/L		----	----	<0.010	<0.010	----
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		----	----	<0.010	<0.010	----
gamma-BHC - (Lindane)	58-89-9	0.010	µg/L		----	----	<0.010	<0.010	----
Methoxychlor	72-43-5	0.010	µg/L		----	----	<0.010	<0.010	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EP131A: Organochlorine Pesticides - Continued									
cis-Chlordane	5103-71-9	0.010	µg/L		----	----	<0.010	<0.010	----
trans-Chlordane	5103-74-2	0.010	µg/L		----	----	<0.010	<0.010	----
^ **Total Chlordane (sum)**	----	0.010	µg/L		----	----	<0.010	<0.010	----
Oxychlordane	27304-13-8	0.010	µg/L		----	----	<0.010	<0.010	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.010	µg/L		----	----	<0.010	<0.010	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.0020	µg/L		<0.0020	<0.0020	<0.0020	<0.0020	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	µg/L		<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.0020	µg/L		<0.0020	<0.0020	<0.0020	<0.0020	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L		<0.0005	<0.0005	<0.0005	<0.0005	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC509	QC510	QC307	QC308	----
			Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit	EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
				Result	Result	Result	Result	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	<0.001	<0.001	<0.001	----
EP231P: PFAS Sums								
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	0.0002	µg/L	<0.0002	<0.0002	<0.0002	<0.0002	----
^ **Sum of PFAS (WA DER List)**	----	0.0002	µg/L	<0.0002	<0.0002	<0.0002	<0.0002	----
^ **Sum of PFAS**	----	0.0002	µg/L	<0.0002	<0.0002	<0.0002	<0.0002	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC509	QC510	QC307	QC308	----
				Sampling date / time	15-Jan-2025 00:00	16-Jan-2025 00:00	15-Jan-2025 00:00	16-Jan-2025 00:00	----
Compound	CAS Number	LOR	Unit		EP2500657-011	EP2500657-012	EP2500657-013	EP2500657-014	--------
					Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		85.7	83.1	102	106	----
Toluene-D8	2037-26-5	2	%		99.8	98.0	98.1	104	----
4-Bromofluorobenzene	460-00-4	2	%		101	101	93.8	105	----
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.010	%		----	----	86.9	101	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		116	106	99.9	101	----
13C8-PFOA	----	0.0005	%		109	107	114	101	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	14	166
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP131A: Organochlorine Pesticides

(WATER) EP131S: OC Pesticide Surrogate

1154927

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ **Sydney Laboratory** 179 Magowar Road, Girraween, NSW 2145 +61 2 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1/21 Smallwood Place, Murarrie, QLD 4172 +61 7 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** 46-48 Banksia Road, Welshpool, WA 6106 +61 8 6253 4444 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 EnviroSampleVic@eurofins.com

Company	Senversa	**Project №**	P21560	**Project Manager**	Paul Monaco
Address	lvl 18, 140 St Georges Terrace, Perth WA 6000	**Project Name**	Anketell Rd DSI	**EDD Format** ESdat, EQuIS etc	
Contact Name	Paul Monaco				
Phone №	0434 152 590				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Catherine Lawrey, Toby Spencer	
Handed over by		
Email for Invoice	Paul.monaco@senversa.com.au	
Email for Results	Paul.monaco@senversa.com.au	

Containers (Change container type & size if necessary)

Required Turnaround Time (TAT) (Default will be 5 days if not ticked.)

♦Surcharge will apply

☐ Overnight (reporting by 9am)♦
☐ Same day♦ ☐ 1 day♦
☐ 2 days♦ ☐ 3 days♦
☐ 5 days (Standard)
☐ Other( )

Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Total metals - (As, Cd, Cr, Cu, Pb, Ni, Zn, Hg)	PFAS (Full standard suite 30 analytes.)	pH	BTEXM/TRH	OC pesticides	Nutrients (TN, TP, TKN, NO_2, NO_3, NH_3 & NO_x)	Major cation & anions.	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	QC201	17/10/24	S	X		X													
2	QC202	17/10/24	S	X		X													
3	QC203	18/10/24	S	X	X	X				X									
4	QC204	21/10/24	S	X	X	X		X		X									
5	QC205	22/10/24	S	X	X	X	X		X										
6	QC206	22/10/24	S	X	X	X	X		X										
7	QC207	23/10/24	S		X														
8																			
9																			
10																			
		Total Counts		6	5	6	2	1	2	2									

Method of Shipment	☐ Courier (#) ☐ Hand Delivered ☐ Postal	Name		Signature		Date	Time	
Laboratory Use Only	Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date 29/10/24	Time 16:14	Temperature 15.1
	Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time	Report №

Eurofins Environment Testing Australia Pty Ltd EnviroSales@eurofins.com

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

QSS009_R12 AU COC Modified by: T. Wong Approved by: A. Black Approved on: 18 November 2022

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins ARL Pty Ltd ABN: 91 05 0159 898

Perth	Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
46-48 Banksia Road	6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Welshpool	Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
WA 6106	VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 8 6253 4444	+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 2377	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 2370 & 2554	Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

Eurofins Environment Testing Australia Pty Ltd ABN: 50 005 085 521

Eurofins Environment Testing NZ Ltd NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	Senversa Pty Ltd WA
Contact name:	- ALL INVOICES
Project name:	ANKETELL RD DSI
Project ID:	P21560
Turnaround time:	5 Day
Date/Time received	Oct 29, 2024 4:14 PM
Eurofins reference	1154927

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	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.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Elden Garrett on phone : 0892519602 or by email: EldenGarrett@eurofins.com

Results will be delivered electronically via email to - ALL INVOICES - supplieraccounts@senversa.com.au.

Note: A copy of these results will also be delivered to the general Senversa Pty Ltd WA email address.

Global Leader - Results you can trust

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

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NATA# 2377
Site# 2370 & 2554

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ABN: 50 005 085 521

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Site# 1254

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Site# 25079

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NZBN: 9429046024954

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Tauranga
1277 Cameron Road,
Gate Pa,
Tauranga 3112
+64 9 525 0568
IANZ# 1402

Company Name: Senversa Pty Ltd WA
Address: Level 18, 140 St Georges Terrace
Perth
WA 6000

Project Name: ANKETELL RD DSI
Project ID: P21560

Order No.:
Report #: 1154927
Phone: 0863240200
Fax: 0396060074

Received: Oct 29, 2024 4:14 PM
Due: Nov 5, 2024
Priority: 5 Day
Contact Name: - ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						pH (1:5 Aqueous extract at 25 °C as rec.)	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins Suite B1	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Eurofins Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P
Perth Laboratory - NATA # 2377 Site # 2370 & 2554						X	X	X	X	X	X			
Melbourne Laboratory - NATA # 1261 Site # 1254											X	X	X	X
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	QC201	Oct 17, 2024		Soil	L24-Oc0082120	X		X	X					
2	QC202	Oct 17, 2024		Soil	L24-Oc0082121	X		X	X		X			
3	QC203	Oct 17, 2024		Soil	L24-Oc0082122	X		X	X		X		X	X
4	QC204	Oct 17, 2024		Soil	L24-Oc0082123	X	X	X	X		X		X	X
5	QC205	Oct 17, 2024		Soil	L24-Oc0082124	X		X	X	X	X	X		
6	QC206	Oct 17, 2024		Soil	L24-Oc0082125	X		X	X	X	X	X		
7	QC207	Oct 17, 2024		Soil	L24-Oc0082126						X			
Test Counts						6	1	6	6	2	6	2	2	2

Senversa Pty Ltd (WA)
Level 18, 140 St Georges Terrace
Perth
WA 6000

NATA Accredited
Accreditation Number 2377
Site Number 2370 & 2554

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

Attention: **- ALL INVOICES**

Report **1154927-S**
Project name ANKETELL RD DSI
Project ID P21560
Received Date Oct 29, 2024

Client Sample ID			**QC201**	**QC202**	**QC203**	**QC204**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L24-Oc0082120**	**L24-Oc0082121**	**L24-Oc0082122**	**L24-Oc0082123**
Date Sampled			**Oct 17, 2024**	**Oct 17, 2024**	**Oct 17, 2024**	**Oct 17, 2024**
Test/Reference	LOR	Unit				
pH	0.1	pH Units	8.3	8.5	8.4	7.5
Alkalinity	50	mg CaCO3/kg	-	-	2900	210
Chloride	10	mg/kg	-	-	10	< 10
Sulfate	10	mg/kg	-	-	< 10	< 10
Heavy Metals						
Arsenic	2	mg/kg	5.8	5.6	5.0	2.8
Cadmium	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Chromium	1	mg/kg	17	10	14	6.7
Copper	1	mg/kg	6.2	1.1	3.7	3.3
Lead	1	mg/kg	35	8.4	19	13
Mercury	0.02	mg/kg	0.02	< 0.02	0.02	< 0.02
Nickel	1	mg/kg	5.2	3.0	6.0	1.8
Zinc	5	mg/kg	28	5.7	22	31
Sample Properties						
% Moisture	1	%	18	23	2.4	8.6
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	< 5
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 (PFUnDA)[N11]	5	ug/kg	-	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	-	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	-	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	-	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	-	57	49	55
13C5-PFPeA (surr.)	1	%	-	65	58	61
13C5-PFHxA (surr.)	1	%	-	65	58	59
13C4-PFHpA (surr.)	1	%	-	62	56	60
13C8-PFOA (surr.)	1	%	-	64	52	61
13C5-PFNA (surr.)	1	%	-	64	50	57
13C6-PFDA (surr.)	1	%	-	65	55	62
13C2-PFUnDA (surr.)	1	%	-	67	40	49

Client Sample ID			QC201	QC202	QC203	QC204
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Oc0082120	L24-Oc0082121	L24-Oc0082122	L24-Oc0082123
Date Sampled			Oct 17, 2024	Oct 17, 2024	Oct 17, 2024	Oct 17, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFDoDA (surr.)	1	%	-	78	51	61
13C2-PFTeDA (surr.)	1	%	-	87	59	73
Perfluoroalkyl sulfonamido substances						
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	%	-	65	47	55
D3-N-MeFOSA (surr.)	1	%	-	76	66	76
D5-N-EtFOSA (surr.)	1	%	-	98	78	90
D7-N-MeFOSE (surr.)	1	%	-	68	56	62
D9-N-EtFOSE (surr.)	1	%	-	72	64	73
D5-N-EtFOSAA (surr.)	1	%	-	68	57	63
D3-N-MeFOSAA (surr.)	1	%	-	72	53	59
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	-	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	-	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	-	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	-	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	-	66	58	60
13C2-6:2 FTSA (surr.)	1	%	-	69	56	70
13C2-8:2 FTSA (surr.)	1	%	-	81	57	70
13C2-10:2 FTSA (surr.)	1	%	-	87	47	58
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	-	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)*[N15]	5	ug/kg	-	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)*[N15]	5	ug/kg	-	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	-	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	-	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	-	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	-	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	-	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	-	56	54	56
18O2-PFHxS (surr.)	1	%	-	59	54	56
13C8-PFOS (surr.)	1	%	-	61	53	55

Client Sample ID			QC201	QC202	QC203	QC204
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Oc0082120	L24-Oc0082121	L24-Oc0082122	L24-Oc0082123
Date Sampled			Oct 17, 2024	Oct 17, 2024	Oct 17, 2024	Oct 17, 2024
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	< 5	< 5	< 5
Sum of PFASs (n=30)*	50	ug/kg	-	< 50	< 50	< 50
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	< 10	< 10	< 10
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	5	mg/kg	-	-	89000	6600
Magnesium	5	mg/kg	-	-	2000	350
Potassium	5	mg/kg	-	-	200	120
Sodium	5	mg/kg	-	-	210	23
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-HCH	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-HCH	0.05	mg/kg	-	-	-	< 0.05
d-HCH	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-HCH (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	0.5	mg/kg	-	-	-	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	136
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	92

Client Sample ID			QC205	QC206	QC207
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24-Oc0082124	L24-Oc0082125	L24-Oc0082126
Date Sampled			Oct 17, 2024	Oct 17, 2024	Oct 17, 2024
Test/Reference	LOR	Unit			
pH	0.1	pH Units	6.6	7.8	-
Ammonia-N	10	mg/kg	< 10	< 10	-
Nitrate-N	1	mg/kg	< 1	< 1	-
Nitrite-N	1	mg/kg	< 1	< 1	-
NOx-N	1	mg/kg	< 1	< 1	-
Total Kjeldahl Nitrogen	10	mg/kg	550	270	-
Total Nitrogen	10	mg/kg	550	270	-
Phosphorus	1	mg/kg	39	9.9	-
Heavy Metals					
Arsenic	2	mg/kg	< 2	< 2	-
Cadmium	0.1	mg/kg	< 0.1	< 0.1	-
Chromium	1	mg/kg	3.1	< 1	-
Copper	1	mg/kg	< 1	< 1	-
Lead	1	mg/kg	1.9	2.2	-
Mercury	0.02	mg/kg	0.02	< 0.02	-
Nickel	1	mg/kg	< 1	< 1	-
Zinc	5	mg/kg	< 5	22	-
Sample Properties					
% Moisture	1	%	3.3	2.8	-
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	< 5
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 (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	57	60	50
13C5-PFPeA (surr.)	1	%	61	68	54
13C5-PFHxA (surr.)	1	%	61	62	56
13C4-PFHpA (surr.)	1	%	63	61	56
13C8-PFOA (surr.)	1	%	63	67	61
13C5-PFNA (surr.)	1	%	58	61	55
13C6-PFDA (surr.)	1	%	63	68	61
13C2-PFUnDA (surr.)	1	%	40	60	59
13C2-PFDoDA (surr.)	1	%	57	67	61
13C2-PFTeDA (surr.)	1	%	72	81	78
Perfluoroalkyl sulfonamido substances					
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

Client Sample ID			QC205	QC206	QC207
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24-Oc0082124	L24-Oc0082125	L24-Oc0082126
Date Sampled			Oct 17, 2024	Oct 17, 2024	Oct 17, 2024
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonamido substances					
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	%	51	63	61
D3-N-MeFOSA (surr.)	1	%	73	80	76
D5-N-EtFOSA (surr.)	1	%	87	96	86
D7-N-MeFOSE (surr.)	1	%	64	69	60
D9-N-EtFOSE (surr.)	1	%	70	75	71
D5-N-EtFOSAA (surr.)	1	%	64	68	59
D3-N-MeFOSAA (surr.)	1	%	58	57	55
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	59	67	57
13C2-6:2 FTSA (surr.)	1	%	65	68	56
13C2-8:2 FTSA (surr.)	1	%	70	72	63
13C2-10:2 FTSA (surr.)	1	%	66	62	63
Perfluoroalkyl sulfonic acids (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)*[N15]	5	ug/kg	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)*[N15]	5	ug/kg	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	55	59	51
18O2-PFHxS (surr.)	1	%	56	61	56
13C8-PFOS (surr.)	1	%	54	59	56
PFASs Summations					
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10
Total Recoverable Hydrocarbons					
TRH C6-C9	20	mg/kg	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	-
TRH C15-C28	50	mg/kg	< 50	< 50	-
TRH C29-C36	50	mg/kg	94	< 50	-
TRH C10-C36 (Total)	50	mg/kg	94	< 50	-
TRH C6-C10	20	mg/kg	< 20	< 20	-

Client Sample ID			QC205	QC206	QC207
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24-Oc0082124	L24-Oc0082125	L24-Oc0082126
Date Sampled			Oct 17, 2024	Oct 17, 2024	Oct 17, 2024
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons					
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2)*[N01]	50	mg/kg	< 50	< 50	-
TRH >C16-C34	100	mg/kg	100	< 100	-
TRH >C34-C40	100	mg/kg	140	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	240	< 100	-
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-
BTEX					
4-Bromofluorobenzene (surr.)	1	%	81	115	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
pH	Welshpool	Oct 31, 2024	7 Days
- Method: ARL138 - pH in Soil and Biosolid			
Alkalinity	Welshpool	Oct 31, 2024	14 Day
- Method: ARL047 - Alkalinity in Soil and Sediment			
Chloride	Welshpool	Oct 31, 2024	14 Days
- Method: ARL306 - Chloride in Soil and Sediment by Discrete Analyser			
Sulfate	Welshpool	Oct 31, 2024	28 Days
- Method: ARL302 - Sulfate in Soil and Sediment by Discrete Analyser			
Ammonia-N	Welshpool	Oct 31, 2024	7 Days
- Method: ARL304 - Ammonia in Soil and Sediment by Discrete Analyser			
Nitrate-N	Welshpool	Oct 31, 2024	7 Days
- Method: ARL314 - NOx in Soil and Sediment by Discrete Analyser			
Nitrite-N	Welshpool	Oct 31, 2024	7 Days
- Method: ARL312 - Nitrite in Soil and Sediment by Discrete Analyser			
Phosphorus	Welshpool	Oct 31, 2024	7 Days
- Method: ARL401/403 - Metals in Soil and Sediment by ICPOES/MS			
Metals M8	Welshpool	Oct 31, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B11C: Na/K/Ca/Mg	Welshpool	Oct 31, 2024	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Welshpool	Oct 31, 2024	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
NOx-N	Welshpool	Oct 31, 2024	7 Days
- Method: ARL314 - NOx in Soil and Sediment by Discrete Analyser			
Total Kjeldahl Nitrogen	Welshpool	Oct 31, 2024	7 Days
- Method: ARL118 - Total Phosphorus and TKN in Soil and Biosolids			
Total Nitrogen	Welshpool	Oct 31, 2024	7 Days
- Method: ARL No. 330 - Persulfate Method for Simultaneous Determination of TN & TP			
% Moisture	Welshpool	Oct 30, 2024	14 Days
- Method: ARL135 Moisture in Solids			
Perfluoroalkyl carboxylic acids (PFCAs)	Welshpool	Oct 31, 2024	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
Perfluoroalkyl sulfonamido substances	Welshpool	Oct 31, 2024	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Welshpool	Oct 31, 2024	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
Perfluoroalkyl sulfonic acids (PFSAs)	Welshpool	Oct 31, 2024	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
PFASs Summations	Welshpool	Oct 31, 2024	
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Welshpool	Oct 31, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Welshpool	Oct 31, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Welshpool	Oct 31, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Welshpool	Oct 31, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			

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Perth
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Project Name: ANKETELL RD DSI
Project ID: P21560

Order No.:
Report #: 1154927
Phone: 0863240200
Fax: 0396060074

Received: Oct 29, 2024 4:14 PM
Due: Nov 5, 2024
Priority: 5 Day
Contact Name: - ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						pH (1:5 Aqueous extract at 25 °C as rec.)	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins Suite B1	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Eurofins Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P
Perth Laboratory - NATA # 2377 Site # 2370 & 2554						X	X	X	X	X	X			
Melbourne Laboratory - NATA # 1261 Site # 1254											X	X	X	X
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	QC201	Oct 17, 2024		Soil	L24-Oc0082120	X		X	X					
2	QC202	Oct 17, 2024		Soil	L24-Oc0082121	X		X	X		X			
3	QC203	Oct 17, 2024		Soil	L24-Oc0082122	X		X	X		X		X	X
4	QC204	Oct 17, 2024		Soil	L24-Oc0082123	X	X	X	X		X		X	X
5	QC205	Oct 17, 2024		Soil	L24-Oc0082124	X		X	X	X	X	X		
6	QC206	Oct 17, 2024		Soil	L24-Oc0082125	X		X	X	X	X	X		
7	QC207	Oct 17, 2024		Soil	L24-Oc0082126						X			
Test Counts						6	1	6	6	2	6	2	2	2

Internal Quality Control Review and Glossary

General

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

Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - 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.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as 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 are not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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							
Alkalinity	mg CaCO3/kg	< 50			50	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.1			0.1	Pass	
Chromium	mg/kg	< 1			1	Pass	
Copper	mg/kg	< 1			1	Pass	
Lead	mg/kg	< 1			1	Pass	
Mercury	mg/kg	< 0.02			0.02	Pass	
Nickel	mg/kg	< 1			1	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/kg	< 5			5	Pass	
Magnesium	mg/kg	< 5			5	Pass	
Potassium	mg/kg	< 5			5	Pass	
Sodium	mg/kg	< 5			5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.1			0.1	Pass	
Chromium	mg/kg	< 1			1	Pass	
Copper	mg/kg	< 1			1	Pass	
Lead	mg/kg	< 1			1	Pass	
Mercury	mg/kg	< 0.02			0.02	Pass	
Nickel	mg/kg	< 1			1	Pass	
Zinc	mg/kg	< 5			5	Pass	
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 (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)*	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	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							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/kg	< 5			5	Pass	
Magnesium	mg/kg	< 5			5	Pass	
Potassium	mg/kg	< 5			5	Pass	
Sodium	mg/kg	< 5			5	Pass	
Method Blank							
Sulfate	mg/kg	< 10			10	Pass	
Ammonia-N	mg/kg	< 10			10	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/kg	< 5			5	Pass	
Magnesium	mg/kg	< 5			5	Pass	
Potassium	mg/kg	< 5			5	Pass	
Sodium	mg/kg	< 5			5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Method Blank							
Ammonia-N	mg/kg	< 10			10	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nitrate-N	mg/kg	< 1			1	Pass	
Nitrite-N	mg/kg	< 1			1	Pass	
NOx-N	mg/kg	< 1			1	Pass	
Phosphorus	mg/kg	< 1			1	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chloride	mg/kg	< 10			10	Pass	
Total Kjeldahl Nitrogen	mg/kg	< 10			10	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	92			80-120	Pass	
Cadmium	%	90			80-120	Pass	
Chromium	%	92			80-120	Pass	
Copper	%	90			80-120	Pass	
Lead	%	96			80-120	Pass	
Mercury	%	100			80-120	Pass	
Nickel	%	93			80-120	Pass	
Zinc	%	93			80-120	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	108			80-120	Pass	
Cadmium	%	98			80-120	Pass	
Chromium	%	85			80-120	Pass	
Copper	%	80			80-120	Pass	
Lead	%	84			80-120	Pass	
Mercury	%	98			80-120	Pass	
Nickel	%	86			80-120	Pass	
Zinc	%	89			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	105			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	110			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	106			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctanoic acid (PFOA)	%	107			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	115			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	103			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	105			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	98			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	95			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	104			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	99			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	104			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	105			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	106			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	108			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	105			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	100			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	118			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	111			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	106			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	104			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)*	%	116			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	%	99			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	104			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	107			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	100			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	98			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	100			50-150	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	93			80-120	Pass	
Magnesium	%	100			80-120	Pass	
Potassium	%	97			80-120	Pass	
Sodium	%	95			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	96			80-120	Pass	
Magnesium	%	101			80-120	Pass	
Potassium	%	96			80-120	Pass	
Sodium	%	105			80-120	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	103			70-130	Pass	
4.4'-DDD	%	88			70-130	Pass	
4.4'-DDE	%	94			70-130	Pass	
4.4'-DDT	%	86			70-130	Pass	
a-HCH	%	96			70-130	Pass	
Aldrin	%	97			70-130	Pass	
b-HCH	%	86			70-130	Pass	
d-HCH	%	93			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dieldrin	%	98			70-130	Pass	
Endosulfan I	%	90			70-130	Pass	
Endosulfan II	%	91			70-130	Pass	
Endosulfan sulphate	%	95			70-130	Pass	
Endrin	%	92			70-130	Pass	
Endrin aldehyde	%	96			70-130	Pass	
Endrin ketone	%	84			70-130	Pass	
g-HCH (Lindane)	%	86			70-130	Pass	
Heptachlor	%	102			70-130	Pass	
Heptachlor epoxide	%	92			70-130	Pass	
Hexachlorobenzene	%	104			70-130	Pass	
Methoxychlor	%	98			70-130	Pass	
LCS - % Recovery							
Phosphorus	%	99			80-120	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	96			70-130	Pass	
TRH C10-C14	%	104			70-130	Pass	
TRH C6-C10	%	90			70-130	Pass	
TRH >C10-C16	%	110			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	84			70-130	Pass	
Toluene	%	92			70-130	Pass	
Ethylbenzene	%	111			70-130	Pass	
m&p-Xylenes	%	98			70-130	Pass	
o-Xylene	%	86			70-130	Pass	
Xylenes - Total*	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	112			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	L24-Oc0082120	CP	%	86			75-125	Pass	
Cadmium	L24-Oc0082120	CP	%	85			75-125	Pass	
Chromium	L24-Oc0082120	CP	%	86			75-125	Pass	
Copper	L24-Oc0082120	CP	%	88			75-125	Pass	
Lead	L24-Oc0082120	CP	%	98			75-125	Pass	
Mercury	L24-Oc0082120	CP	%	98			75-125	Pass	
Nickel	L24-Oc0082120	CP	%	90			75-125	Pass	
Zinc	L24-Oc0082120	CP	%	97			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	L24-No0002606	NCP	%	76			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	L24-No0002606	NCP	%	75			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	L24-No0002606	NCP	%	84			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	L24-No0002606	NCP	%	88			50-150	Pass	
Perfluorooctanoic acid (PFOA)	L24-No0002606	NCP	%	85			50-150	Pass	
Perfluorononanoic acid (PFNA)	L24-No0002606	NCP	%	86			50-150	Pass	
Perfluorodecanoic acid (PFDA)	L24-No0002606	NCP	%	81			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	L24-No0002606	NCP	%	89			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	L24-No0002606	NCP	%	78			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	L24-No0002606	NCP	%	71			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L24-No0002606	NCP	%	80			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	L24-No0002606	NCP	%	81			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L24-No0002606	NCP	%	79			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L24-No0002606	NCP	%	80			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L24-No0002606	NCP	%	81			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L24-No0002606	NCP	%	82			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L24-No0002606	NCP	%	73			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L24-No0002606	NCP	%	82			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L24-No0002606	NCP	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L24-No0002606	NCP	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L24-No0002606	NCP	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L24-No0002606	NCP	%	82			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	L24-No0002606	NCP	%	80			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)*	L24-No0002606	NCP	%	83			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	L24-No0002606	NCP	%	82			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L24-No0002606	NCP	%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L24-No0002606	NCP	%	80			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L24-No0002606	NCP	%	78			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	L24-No0002606	NCP	%	91			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	L24-No0002606	NCP	%	82			50-150	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	L24-Oc0082123	CP	%	95			75-125	Pass	
Cadmium	L24-Oc0082123	CP	%	90			75-125	Pass	
Chromium	L24-Oc0082123	CP	%	95			75-125	Pass	
Copper	L24-Oc0082123	CP	%	95			75-125	Pass	
Lead	L24-Oc0082123	CP	%	96			75-125	Pass	
Mercury	L24-Oc0082123	CP	%	102			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nickel	L24-Oc0082123	CP	%	96			75-125	Pass	
Zinc	L24-Oc0082123	CP	%	98			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	L24-Oc0079517	NCP	%	114			70-130	Pass	
4.4'-DDD	L24-Oc0079517	NCP	%	105			70-130	Pass	
4.4'-DDE	L24-Oc0079517	NCP	%	108			70-130	Pass	
4.4'-DDT	L24-Oc0079517	NCP	%	114			70-130	Pass	
a-HCH	L24-Oc0079517	NCP	%	101			70-130	Pass	
Aldrin	L24-Oc0079517	NCP	%	107			70-130	Pass	
b-HCH	L24-Oc0079517	NCP	%	102			70-130	Pass	
d-HCH	L24-Oc0079517	NCP	%	102			70-130	Pass	
Dieldrin	L24-Oc0079517	NCP	%	107			70-130	Pass	
Endosulfan I	L24-Oc0079517	NCP	%	115			70-130	Pass	
Endosulfan II	L24-Oc0079517	NCP	%	97			70-130	Pass	
Endosulfan sulphate	L24-Oc0079517	NCP	%	104			70-130	Pass	
Endrin	L24-Oc0079517	NCP	%	110			70-130	Pass	
Endrin aldehyde	L24-Oc0079517	NCP	%	110			70-130	Pass	
Endrin ketone	L24-Oc0079517	NCP	%	112			70-130	Pass	
g-HCH (Lindane)	L24-Oc0079517	NCP	%	108			70-130	Pass	
Heptachlor	L24-Oc0079517	NCP	%	105			70-130	Pass	
Heptachlor epoxide	L24-Oc0079517	NCP	%	102			70-130	Pass	
Hexachlorobenzene	L24-Oc0079517	NCP	%	115			70-130	Pass	
Methoxychlor	L24-Oc0079517	NCP	%	114			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	L24-Oc0079517	NCP	%	100			70-130	Pass	
TRH C10-C14	L24-Oc0079517	NCP	%	103			70-130	Pass	
TRH C6-C10	L24-Oc0079517	NCP	%	98			70-130	Pass	
TRH >C10-C16	L24-Oc0079517	NCP	%	108			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	L24-Oc0079517	NCP	%	92			70-130	Pass	
Toluene	L24-Oc0079517	NCP	%	88			70-130	Pass	
Ethylbenzene	L24-Oc0079517	NCP	%	102			70-130	Pass	
m&p-Xylenes	L24-Oc0079517	NCP	%	99			70-130	Pass	
o-Xylene	L24-Oc0079517	NCP	%	100			70-130	Pass	
Xylenes - Total*	L24-Oc0079517	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	L24-Oc0079517	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	L24-Oc0082125	CP	%	91			75-125	Pass	
Cadmium	L24-Oc0082125	CP	%	87			75-125	Pass	
Chromium	L24-Oc0082125	CP	%	88			75-125	Pass	
Copper	L24-Oc0082125	CP	%	86			75-125	Pass	
Lead	L24-Oc0082125	CP	%	91			75-125	Pass	
Mercury	L24-Oc0082125	CP	%	97			75-125	Pass	
Nickel	L24-Oc0082125	CP	%	90			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
pH	L24-Oc0082120	CP	pH Units	8.3	8.4	1.1	30%	Pass	

Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	L24-Se0014696	NCP	%	< 1	< 1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	L24-Oc0082122	CP	mg/kg	5.0	5.2	4.0	30%	Pass	
Cadmium	L24-Oc0082122	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Chromium	L24-Oc0082122	CP	mg/kg	14	14	3.0	30%	Pass	
Copper	L24-Oc0082122	CP	mg/kg	3.7	3.8	4.0	30%	Pass	
Lead	L24-Oc0082122	CP	mg/kg	19	19	2.0	30%	Pass	
Mercury	L24-Oc0082122	CP	mg/kg	0.02	0.02	8.0	30%	Pass	
Nickel	L24-Oc0082122	CP	mg/kg	6.0	6.1	1.0	30%	Pass	
Zinc	L24-Oc0082122	CP	mg/kg	22	23	1.0	30%	Pass	
Duplicate									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD			
Calcium	L24-Oc0082122	CP	mg/kg	89000	93000	4.0	30%	Pass	
Magnesium	L24-Oc0082122	CP	mg/kg	2000	2000	<1	30%	Pass	
Potassium	L24-Oc0082122	CP	mg/kg	200	200	1.0	30%	Pass	
Sodium	L24-Oc0082122	CP	mg/kg	210	220	3.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	L24-Oc0084732	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	L24-Oc0084732	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Kjeldahl Nitrogen	L24-Oc0067194	NCP	mg/kg	370	350	4.0	20%	Pass	
Phosphorus	L24-Oc0082124	CP	mg/kg	39	39	<1	20%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	L24-Oc0082124	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	L24-Oc0082124	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Chromium	L24-Oc0082124	CP	mg/kg	3.1	3.1	<1	30%	Pass	
Copper	L24-Oc0082124	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Lead	L24-Oc0082124	CP	mg/kg	1.9	2.0	3.0	30%	Pass	
Nickel	L24-Oc0082124	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Zinc	L24-Oc0082124	CP	mg/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD			
Calcium	L24-Oc0082124	CP	mg/kg	1100	1100	2.0	30%	Pass	
Magnesium	L24-Oc0082124	CP	mg/kg	64	66	2.0	30%	Pass	
Sodium	L24-Oc0082124	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	L24-Oc0084728	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	L24-Oc0084735	NCP	mg/kg	36	36	<1	30%	Pass	
TRH C15-C28	L24-Oc0084735	NCP	mg/kg	110	120	3.0	30%	Pass	
TRH C29-C36	L24-Oc0084735	NCP	mg/kg	78	81	3.0	30%	Pass	
TRH C6-C10	L24-Oc0084728	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	L24-Oc0084735	NCP	mg/kg	70	71	<1	30%	Pass	
TRH >C16-C34	L24-Oc0084735	NCP	mg/kg	140	150	3.0	30%	Pass	
TRH >C34-C40	L24-Oc0084735	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	L24-Oc0084728	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	L24-Oc0084728	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	L24-Oc0084728	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	L24-Oc0084728	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	L24-Oc0084728	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	L24-Oc0084728	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	L24-Oc0084728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L24-Oc0082126	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L24-Oc0082126	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L24-Oc0082126	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)*	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	L24-Oc0082126	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	L24-Oc0082126	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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Elden Garrett	Analytical Services Manager
Douglas Todd	Senior Analyst-Sample Properties
Patrick Patfield	Senior Analyst-Organic
Patrick Patfield	Senior Analyst-PFAS
Patrick Patfield	Senior Analyst-Volatile
Sam Becker	Senior Analyst-Inorganic
Sean Sangster	Senior Analyst-Metal



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request

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

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

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☐ Brisbane Laboratory
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☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
+61 3 8564 5000 EnviroSampleVic@eurofins.com

Company	Senversa	Project №	P21560	Project Manager	Paul Monaco
Address	lvl 18, 140 St Georges Terrace, Perth WA 6000	Project Name	Anketell Rd DSI	EDD Format (Excel, EQuIS etc)	
Contact Name	Paul Monaco				
Phone №	0434 152 590				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Catherine Lawrey, Toby Spencer	
Handed over by		
Email for Invoice	Paul.monaco@senversa.com.au	
Email for Results	Paul.monaco@senversa.com.au	

Analyses — Where metals are required, please specify Total or Dissolved

№	Client Sample ID	Sampled Date/Time (dd/mm/yy hh:mm)	Matrix Solid (S) Water (W)	Total metals - (As, Cd, Cr, Cu, Pb, Ni, Zn, Hg)	PFAS (Full standard suite 30 analytes,)	pH	BTEXM/TRH	OC pesticides	Nutrients (TN, TP, TKN, NO_2, NO_3, NH_3 & No_x)	Major cation & anions,										Containers (Change container type & size if necessary) 500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	QC201	17/10/24	S	X	X	X																					Analysis already requested
2	QC202	17/10/24	S	X	X	X																					Analysis already requested
3	QC203	18/10/24	S	X	X	X				X																	Analysis already requested
4	QC204	21/10/24	S	X	X	X		X		X																	Analysis already requested
5	QC205	22/10/24	S	X	X	X	X		X																		Analysis already requested
6	QC206	22/10/24	S	X	X	X	X		X																		Analysis already requested
7	QC207	23/10/24	S		X																						Analysis already requested
8	QC213	23/10/24	S		X																						
9	QC214	23/10/24	S		X																						
10	QC215	23/10/24	S		X																						
	Total Counts			6	10	6	2	1	2	2																	

Containers — Change container type & size if necessary

Required Turnaround Time (TAT) — Default will be 5 days if not ticked

♦Surcharge will apply
☐ Overnight (reporting by 9am)♦
☐ Same day♦ ☐ 1 day♦
☐ 2 days♦ ☐ 3 days♦
☐ 5 days (Standard)
☐ Other( )

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name		Signature		Date		Time	
Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature	12°c
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	01/11/24	Time	13:03	Report №	1155718

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

QF1804, Rev 4.0 (AU), Originally | Work Approved by: A. Black, Approved on: 18 November 2022

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins ARL Pty Ltd ABN: 91 05 0159 898

Perth	Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
46-48 Banksia Road	6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Welshpool	Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
WA 6106	VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
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Site# 2370 & 2554	Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

Eurofins Environment Testing Australia Pty Ltd ABN: 50 005 085 521

Eurofins Environment Testing NZ Ltd NZBN: 9429046024954

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name: Senversa Pty Ltd WA
Contact name: Paul Monaco
Project name: ANKETELL RD DSI
Project ID: P21560
Turnaround time: 5 Day
Date/Time received Nov 1, 2024 1:03 PM
Eurofins reference 1155718

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	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.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Elden Garrett on phone : 0892519602 or by email: EldenGarrett@eurofins.com

Results will be delivered electronically via email to Paul Monaco - paul.monaco@senversa.com.au.

Note: A copy of these results will also be delivered to the general Senversa Pty Ltd WA email address.

Global Leader - Results you can trust

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Company Name: Senversa Pty Ltd WA
Address: Level 18, 140 St Georges Terrace
Perth
WA 6000

Project Name: ANKETELL RD DSI
Project ID: P21560

Order No.:
Report #: 1155718
Phone: 0863240200
Fax: 0396060074

Received: Nov 1, 2024 1:03 PM
Due: Nov 8, 2024
Priority: 5 Day
Contact Name: Paul Monaco

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370 & 2554						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC213	Oct 23, 2024		Soil	L24-No0002606	X	X
2	QC214	Oct 23, 2024		Soil	L24-No0002607	X	X
3	QC215	Oct 23, 2024		Soil	L24-No0002608	X	X
Test Counts						3	3

Senversa Pty Ltd (WA)
Level 18, 140 St Georges Terrace
Perth
WA 6000

NATA Accredited
Accreditation Number 2377
Site Number 2370 & 2554

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

Attention: **Paul Monaco**

Report **1155718-S**
Project name ANKETELL RD DSI
Project ID P21560
Received Date Nov 01, 2024

Client Sample ID			**QC213**	**QC214**	**QC215**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L24-No0002606**	**L24-No0002607**	**L24-No0002608**
Date Sampled			**Oct 23, 2024**	**Oct 23, 2024**	**Oct 23, 2024**
Test/Reference	LOR	Unit			
Sample Properties					
% Moisture	1	%	11	3.3	2.6
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	< 5
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 (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	73	61	88
13C5-PFPeA (surr.)	1	%	80	64	95
13C5-PFHxA (surr.)	1	%	79	64	100
13C4-PFHpA (surr.)	1	%	79	68	96
13C8-PFOA (surr.)	1	%	82	67	97
13C5-PFNA (surr.)	1	%	78	67	95
13C6-PFDA (surr.)	1	%	81	73	105
13C2-PFUnDA (surr.)	1	%	85	68	97
13C2-PFDoDA (surr.)	1	%	83	73	110
13C2-PFTeDA (surr.)	1	%	109	86	130
Perfluoroalkyl sulfonamido substances					
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

Client Sample ID			QC213	QC214	QC215
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24-No0002606	L24-No0002607	L24-No0002608
Date Sampled			Oct 23, 2024	Oct 23, 2024	Oct 23, 2024
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonamido substances					
13C8-FOSA (surr.)	1	%	82	74	102
D3-N-MeFOSA (surr.)	1	%	104	92	119
D5-N-EtFOSA (surr.)	1	%	128	105	159
D7-N-MeFOSE (surr.)	1	%	89	71	111
D9-N-EtFOSE (surr.)	1	%	100	81	119
D5-N-EtFOSAA (surr.)	1	%	84	71	107
D3-N-MeFOSAA (surr.)	1	%	79	69	98
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	79	64	93
13C2-6:2 FTSA (surr.)	1	%	73	68	95
13C2-8:2 FTSA (surr.)	1	%	80	66	104
13C2-10:2 FTSA (surr.)	1	%	93	87	103
Perfluoroalkyl sulfonic acids (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)*[N15]	5	ug/kg	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)*[N15]	5	ug/kg	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	73	63	87
18O2-PFHxS (surr.)	1	%	76	63	87
13C8-PFOS (surr.)	1	%	79	65	93
PFASs Summations					
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
% Moisture	Welshpool	Nov 01, 2024	14 Days
- Method: ARL135 Moisture in Solids			
Perfluoroalkyl carboxylic acids (PFCAs)	Welshpool	Nov 01, 2024	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
Perfluoroalkyl sulfonamido substances	Welshpool	Nov 01, 2024	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Welshpool	Nov 01, 2024	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
Perfluoroalkyl sulfonic acids (PFSAs)	Welshpool	Nov 01, 2024	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
PFASs Summations	Welshpool	Nov 01, 2024	
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			

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Project Name: ANKETELL RD DSI
Project ID: P21560

Order No.:
Report #: 1155718
Phone: 0863240200
Fax: 0396060074

Received: Nov 1, 2024 1:03 PM
Due: Nov 8, 2024
Priority: 5 Day
Contact Name: Paul Monaco

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370 & 2554						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC213	Oct 23, 2024		Soil	L24-No0002606	X	X
2	QC214	Oct 23, 2024		Soil	L24-No0002607	X	X
3	QC215	Oct 23, 2024		Soil	L24-No0002608	X	X
Test Counts						3	3

Internal Quality Control Review and Glossary

General

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

Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - 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.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as 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 are not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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 (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)*	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	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	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	105			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	110			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	106			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	107			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	115			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	103			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	105			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	98			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	95			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	104			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	99			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	104			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	105			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	106			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	108			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	105			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	100			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	118			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	111			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	106			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	104			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)*	%	116			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	%	99			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	104			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	107			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	100			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	98			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	100			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)	L24-No0002606	CP	%	76			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	L24-No0002606	CP	%	75			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	L24-No0002606	CP	%	84			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	L24-No0002606	CP	%	88			50-150	Pass	
Perfluorooctanoic acid (PFOA)	L24-No0002606	CP	%	85			50-150	Pass	
Perfluorononanoic acid (PFNA)	L24-No0002606	CP	%	86			50-150	Pass	
Perfluorodecanoic acid (PFDA)	L24-No0002606	CP	%	81			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	L24-No0002606	CP	%	89			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	L24-No0002606	CP	%	78			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	L24-No0002606	CP	%	71			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L24-No0002606	CP	%	80			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	L24-No0002606	CP	%	81			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L24-No0002606	CP	%	79			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L24-No0002606	CP	%	80			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L24-No0002606	CP	%	81			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L24-No0002606	CP	%	82			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L24-No0002606	CP	%	73			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L24-No0002606	CP	%	82			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L24-No0002606	CP	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L24-No0002606	CP	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L24-No0002606	CP	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L24-No0002606	CP	%	82			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	L24-No0002606	CP	%	80			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)*	L24-No0002606	CP	%	83			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	L24-No0002606	CP	%	82			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L24-No0002606	CP	%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L24-No0002606	CP	%	80			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L24-No0002606	CP	%	78			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	L24-No0002606	CP	%	91			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	L24-No0002606	CP	%	82			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	L24-No0002607	CP	%	3.3	2.7	20	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L24-No0002607	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L24-No0002607	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L24-No0002607	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)*	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	L24-No0002607	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	L24-No0002607	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

Qualifier Codes/Comments

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

Authorised by:

Elden Garrett	Analytical Services Manager
Douglas Todd	Senior Analyst-Sample Properties
Patrick Patfield	Senior Analyst-PFAS



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request

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

ARL Samples

From: Paul Monaco <Paul.Monaco@senversa.com.au>
Sent: Friday, 6 December 2024 2:01 PM
To: ARL Samples
Subject: RE: P21560 COC please
Attachments: P21560 Water CoC Euro.pdf

Good afternoon

Please find attached a CoC.

Please note that I don't know what bottles have been suppled, as I didn't order them.
But based on conversations with other labs, extra volume may be needed for the PFAS super trace LOR.
Could you please take from the large green plastic and remove ph/TDS.

If this is not possible, please let me know what analysis will have to be dropped in order to achieve the ultra trace LOR.

Kind regards,
Paul

senversa
Paul Monaco
Senior Environmental Scientist
M: **+61 434 152 590**
www.senversa.com.au
Level 18, 140 St Georges Terrace,
Whadjuk, Noongar Country
Perth, WA, 6000, Australia

From: ARL Samples <samples@arlgroup.com.au>
Sent: Friday, 6 December 2024 1:00 PM
To: Paul Monaco <Paul.Monaco@senversa.com.au>
Subject: P21560 COC please

Hello again, Paul!

We have also received a water sample from ALS:

P21560
QC217 (28/11/24)

It would be lovely if you could please forward the COC for this one too 😊

Kind regards,

Caroline Nottle | Logistics Officer | Eurofins|ARL|Promicro
Phone. +61 8 6253 4444 | Fax: +61 8 6253 4440
Email. samples@arlgroup.com.au
Address. 46-48 Banksia Road, WELSHPOOL, WA, 6106

Thank you for your ongoing support with Eurofins.
To assist with your planning over the December–January period, kindly review the operating schedule by clicking the link below.

1168982

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ **Sydney Laboratory** 179 Magowar Road, Girraween, NSW 2145 +61 2 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1/21 Smallwood Place, Murarrie, QLD 4172 +61 7 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** 46-48 Banksia Road, Welshpool, WA 6106 +61 8 6253 4444 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 EnviroSampleVic@eurofins.com

Company	Senversa	**Project №**	P21560	**Project Manager**	Paul Monaco
Address	lvl 18, 140 St Georges Terrace, Perth WA 6000	**Project Name**	Anketell Road DSI	**EDD Format** ESdat, EQuIS etc	
Contact Name	Paul Monaco				
Phone №	0434 152 590				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Indiana Daniels	
Handed over by		
Email for Invoice	Paul.monaco@senversa.com.au	
Email for Results	Paul.monaco@senversa.com.au	

Containers (Change container type & size if necessary)

Required Turnaround Time (TAT) (Default will be 5 days if not ticked.)

♦Surcharge will apply

☐ Overnight (reporting by 9am)♦
☐ Same day♦ ☐ 1 day♦
☐ 2 days♦ ☐ 3 days♦
☐ 5 days (Standard)
☐ Other( )

Analyses (Where metals are requested, please specify "Total" or "Dissolved")

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS-30 compound ultra trace LOR	ASS Groundwater quality suite - R14	Suite B14	Dissolved metals (Mo)	Suite B1	Suite B11A	Nitrate											500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	QC217	28/11/24	W	X	X	X	X	X	X	X																			
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
	Total Counts			1	1	1	1	1	1	1																			

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name		Signature		Date		Time	
Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	06/12/24	Time	14:27	Temperature	14.2
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №	

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

OS3009_R12 'AU COC (2)' Modified by: T Wong Approved by: A Black Approved on: 18 November 2022

www.eurofinsanz.com EnviroSales@eurofins.com

Eurofins ARL Pty Ltd ABN: 91 05 0159 898

Perth	Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
46-48 Banksia Road	6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Welshpool	Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
WA 6106	VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 8 6253 4444	+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 2377	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 2370 & 2554	Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

Eurofins Environment Testing Australia Pty Ltd ABN: 50 005 085 521

Eurofins Environment Testing NZ Ltd NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	Senversa Pty Ltd WA
Contact name:	- ALL INVOICES
Project name:	ANKETELL ROAD DSI
Project ID:	P21560
Turnaround time:	5 Day
Date/Time received	Dec 6, 2024 2:27 PM
Eurofins reference	1168982

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	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.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

REMOVE TESTING AS PER EMAIL + SAMPLE BOTTLES

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Elden Garrett on phone : 0892519602 or by email: Elden.Garrett@eurofinsanz.com

Results will be delivered electronically via email to - ALL INVOICES - supplieraccounts@senversa.com.au.

Note: A copy of these results will also be delivered to the general Senversa Pty Ltd WA email address.

Global Leader - Results you can trust

Eurofins ARL Pty Ltd
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46-48 Banksia Road
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NATA# 2377
Site# 2370 & 2554

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ABN: 50 005 085 521

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6 Monterey Road
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+61 3 8564 5000
NATA# 1261
Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
+61 3 8564 5000
NATA# 1261
Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
+61 2 9900 8400
NATA# 1261
Site# 18217

Canberra
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NATA# 1261
Site# 25466

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Site# 20794 & 2780

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Site# 25079

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Christchurch 7675
+64 3 343 5201
IANZ# 1290

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1277 Cameron Road,
Gate Pa,
Tauranga 3112
+64 9 525 0568
IANZ# 1402

web: www.eurofinsanz.com
email: EnviroSales@eurofins.com

Company Name: Senversa Pty Ltd WA
Address: Level 18, 140 St Georges Terrace
Perth
WA 6000

Project Name: ANKETELL ROAD DSI
Project ID: P21560

Order No.:
Report #: 1168982
Phone: 0863240200
Fax: 0396060074

Received: Dec 6, 2024 2:27 PM
Due: Dec 13, 2024
Priority: 5 Day
Contact Name: - ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						Molybdenum (filtered)	Nitrate (as N)	Suite B14: OCP/OPP	Eurofins Suite B11A	Eurofins Suite B1	ASS Dewatering Suite - WA Department of Environment and Conservation	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace
Perth Laboratory - NATA # 2377 Site # 2370 & 2554						X	X		X	X	X	X
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X		X	
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	QC217	Nov 28, 2024		Water	L24-De0018755	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1

Senversa Pty Ltd (WA)
Level 18, 140 St Georges Terrace
Perth
WA 6000

NATA Accredited
Accreditation Number 2377
Site Number 2370 & 2554

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

Attention: **Paul Monaco**

Report **1168982-W**
Project name ANKETELL ROAD DSI
Project ID P21560
Received Date Dec 06, 2024

Client Sample ID			**QC217**
Sample Matrix			**Water**
Eurofins Sample No.			**L24-De0018755**
Date Sampled			**Nov 28, 2024**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.02	mg/L	< 0.02
TRH C15-C28	0.04	mg/L	< 0.04
TRH C29-C36	0.04	mg/L	< 0.04
TRH C10-C36 (Total)	0.04	mg/L	< 0.04
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.02	mg/L	< 0.02
TRH >C10-C16 less Naphthalene (F2)*[N01]	0.02	mg/L	< 0.02
TRH >C16-C34	0.05	mg/L	< 0.05
TRH >C34-C40	0.05	mg/L	< 0.05
TRH >C10-C40 (total)*	0.05	mg/L	< 0.05
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
BTEX			
4-Bromofluorobenzene (surr.)	1	%	103
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.001	mg/L	< 0.001
OCOP in Water			
Aldrin	0.001	ug/L	< 0.001
alpha-BHC (HCH)	0.001	ug/L	< 0.001
beta-BHC (HCH)	0.001	ug/L	< 0.001
delta-BHC (HCH)	0.001	ug/L	< 0.001
Bifenthrin	0.05	ug/L	< 0.05
Bromophos Ethyl	0.005	ug/L	< 0.005
Chlordane	0.002	ug/L	< 0.002
Chlorothalonil	0.01	ug/L	< 0.01
Chlorpyrifos	0.005	ug/L	< 0.005
Diazinon	0.01	ug/L	< 0.01
Dieldrin	0.001	ug/L	< 0.001

Client Sample ID			QC217
Sample Matrix			Water
Eurofins Sample No.			L24-De0018755
Date Sampled			Nov 28, 2024
Test/Reference	LOR	Unit	
OCOP in Water			
Endosulfan I	0.001	ug/L	< 0.001
Endosulfan II	0.001	ug/L	< 0.001
Endosulfan Sulfate	0.001	ug/L	< 0.001
Endrin	0.01	ug/L	< 0.01
Ethion	0.01	ug/L	< 0.01
Fenitrothion	0.01	ug/L	< 0.01
Fipronil	0.02	ug/L	< 0.02
Hexachlorobenzene (HCB)	0.001	ug/L	< 0.001
Heptachlor Epoxide	0.001	ug/L	< 0.001
Heptachlor	0.001	ug/L	< 0.001
Lindane	0.001	ug/L	< 0.001
Malathion	0.01	ug/L	< 0.01
Methoxychlor	0.02	ug/L	< 0.02
o.p-DDT	0.001	ug/L	< 0.001
Oxychlordane	0.001	ug/L	< 0.001
p.p-DDD	0.001	ug/L	< 0.001
p.p-DDE	0.001	ug/L	< 0.001
p.p-DDT	0.001	ug/L	< 0.001
Parathion Ethyl	0.02	ug/L	< 0.02
Parathion Methyl	0.02	ug/L	< 0.02
Trifluralin	0.01	ug/L	< 0.01
Vinclozolin	0.02	ug/L	< 0.02
Acidity (as CaCO3)	10	mg/L	12
Ammonia (as N)	0.02	mg/L	< 0.02
Chloride	5	mg/L	120
Conductivity (at 25 °C)	10	uS/cm	1200
Nitrate (as N)	0.01	mg/L	2.8
NOx (as N)	0.01	mg/L	2.8
pH (at 25 °C)	0.1	pH Units	7.6
Sulfate (as SO4)	1	mg/L	150
Sulphide (as H2S)	0.05	mg/L	< 0.05
Total Dissolved Solids Dried at 180 °C ± 2 °C	5	mg/L	690
Total Kjeldahl Nitrogen	0.2	mg/L	< 0.2
Total Nitrogen	0.2	mg/L	2.8
Total Phosphorus	0.01	mg/L	< 0.01
Total Suspended Solids Dried at 103°C to 105°C	5	mg/L	170
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO3)	5	mg/L	340
Carbonate Alkalinity (as CaCO3)	5	mg/L	< 5
Hydroxide Alkalinity (as CaCO3)	5	mg/L	< 5
Total Alkalinity (as CaCO3)	5	mg/L	340
Heavy Metals			
Aluminium	0.05	mg/L	2.5
Aluminium (filtered)	0.05	mg/L	< 0.05
Arsenic	0.001	mg/L	0.004
Chromium	0.001	mg/L	0.009
Iron	0.01	mg/L	3.4
Iron (filtered)	0.01	mg/L	< 0.01

Client Sample ID			QC217
Sample Matrix			Water
Eurofins Sample No.			L24-De0018755
Date Sampled			Nov 28, 2024
Test/Reference	LOR	Unit	
Heavy Metals			
Manganese	0.005	mg/L	0.31
Molybdenum (filtered)	0.001	mg/L	0.007
Nickel	0.001	mg/L	0.002
Selenium	0.001	mg/L	0.004
Zinc	0.005	mg/L	0.007
Eurofins Suite B11C: Na/K/Ca/Mg			
Calcium	0.5	mg/L	150
Magnesium	0.5	mg/L	12
Potassium	0.5	mg/L	5.0
Sodium	0.5	mg/L	110
Perfluoroalkyl sulfonamido substances- 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	%	26
D3-N-MeFOSA (surr.)	1	%	59
D5-N-EtFOSA (surr.)	1	%	86
D7-N-MeFOSE (surr.)	1	%	25
D9-N-EtFOSE (surr.)	1	%	27
D5-N-EtFOSAA (surr.)	1	%	22
D3-N-MeFOSAA (surr.)	1	%	21
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]	0.005	ug/L	< 0.005
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
Perfluorotridecanoic acid (PFTrDA)[N15]	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA)[N11]	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA)[N11]	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	31
13C5-PFPeA (surr.)	1	%	37
13C5-PFHxA (surr.)	1	%	35
13C4-PFHpA (surr.)	1	%	37
13C8-PFOA (surr.)	1	%	40
13C5-PFNA (surr.)	1	%	28
13C6-PFDA (surr.)	1	%	28
13C2-PFUnDA (surr.)	1	%	26
13C2-PFDoDA (surr.)	1	%	27
13C2-PFTeDA (surr.)	1	%	29

Client Sample ID			QC217
Sample Matrix			Water
Eurofins Sample No.			L24-De0018755
Date Sampled			Nov 28, 2024
Test/Reference	LOR	Unit	
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	31
13C2-6:2 FTSA (surr.)	1	%	24
13C2-8:2 FTSA (surr.)	1	%	27
13C2-10:2 FTSA (surr.)	1	%	29
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra trace			
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS)*[N15]	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.0001	ug/L	0.0004
Perfluoropropanesulfonic acid (PFPrS)*[N15]	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS)[N15]	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	35
18O2-PFHxS (surr.)	1	%	33
13C8-PFOS (surr.)	1	%	26
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Dec 10, 2024	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Dec 10, 2024	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Dec 10, 2024	7 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Dec 10, 2024	14 Days
OCOP in Water - Method: ARL No. 002 - OCOP and PCB in Water	Welshpool	Dec 10, 2024	7 Days
Nitrate (as N) - Method: ARL313/319 - NOx in Water by Discrete Analyser	Welshpool	Dec 10, 2024	28 Days
Heavy Metals (filtered) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Dec 10, 2024	28 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Dec 10, 2024	180 Days
Acidity (as CaCO3) - Method: LTM-INO-4210 Acidity	Welshpool	Dec 10, 2024	14 Days
Ammonia (as N) - Method: ARL303 - Ammonia in Water by Discrete Analyser	Welshpool	Dec 10, 2024	28 Days
Chloride - Method: ARL305 - Chloride in Water by Discrete Analyser	Welshpool	Dec 10, 2024	28 Days
Conductivity (at 25 °C) - Method: LTM-INO-4030 Conductivity	Welshpool	Dec 10, 2024	28 Days
NOx (as N) - Method: ARL313/319 - NOx in Water by Discrete Analyser	Welshpool	Dec 10, 2024	28 Days
pH (at 25 °C) - Method: LTM-GEN-7090 pH in water by ISE	Welshpool	Dec 10, 2024	6 Hours
Sulfate (as SO4) - Method: ARL301 - Sulfate in Water by Discrete Analyser	Welshpool	Dec 10, 2024	28 Days
Sulphide (as H2S) - Method: LTM-INO-4011 Determination of Sulfide	Melbourne	Dec 12, 2024	7 Days
Total Dissolved Solids Dried at 180 °C ± 2 °C - Method: ARL No. 017 - Total Dissolved Solids	Welshpool	Dec 10, 2024	7 Days
Total Kjeldahl Nitrogen - Method: ARL No. 330 - Persulfate Method for Simultaneous Determination of TN & TP	Welshpool	Dec 09, 2024	28 Day
Total Nitrogen - Method: ARL No. 330 - Persulfate Method for Simultaneous Determination of TN & TP	Welshpool	Dec 10, 2024	28 Days
Total Phosphorus - Method: ARL308 - Total Phosphorus in Water by Discrete Analyser	Welshpool	Dec 10, 2024	28 Days
Total Suspended Solids Dried at 103°C to 105°C - Method: ARL No. 016 - Total Suspended Solids	Welshpool	Dec 10, 2024	7 Days
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Welshpool	Dec 10, 2024	14 Days
Dewatering Metals : Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Dec 10, 2024	6 Months
Perfluoroalkyl sulfonamido substances- Trace - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Dec 10, 2024	28 Days
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Dec 10, 2024	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Welshpool	Dec 10, 2024	28 Days

Description	Testing Site	Extracted	Holding Time
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra trace	Welshpool	Dec 10, 2024	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS (ultra trace)			

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Order No.:
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Received: Dec 6, 2024 2:27 PM
Due: Dec 13, 2024
Priority: 5 Day
Contact Name: - ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						Molybdenum (filtered)	Nitrate (as N)	Eurofins Suite B1	Eurofins Suite B11C: Na/K/Ca/Mg	OCOP in Water	ASS Dewatering Suite - WA Department of Environment and Conservation	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace
Perth Laboratory - NATA # 2377 Site # 2370 & 2554						X	X	X	X	X	X	X
Melbourne Laboratory - NATA # 1261 Site # 1254											X	
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	QC217	Nov 28, 2024		Water	L24-De0018755	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1

Internal Quality Control Review and Glossary

General

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

Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - 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.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as 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 are not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.02			0.02	Pass	
TRH C15-C28	mg/L	< 0.04			0.04	Pass	
TRH C29-C36	mg/L	< 0.04			0.04	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.02			0.02	Pass	
TRH >C16-C34	mg/L	< 0.05			0.05	Pass	
TRH >C34-C40	mg/L	< 0.05			0.05	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.001			0.001	Pass	
Method Blank							
OCOP in Water							
Aldrin	ug/L	< 0.001			0.001	Pass	
alpha-BHC (HCH)	ug/L	< 0.001			0.001	Pass	
beta-BHC (HCH)	ug/L	< 0.001			0.001	Pass	
delta-BHC (HCH)	ug/L	< 0.001			0.001	Pass	
Bifenthrin	ug/L	< 0.05			0.05	Pass	
Bromophos Ethyl	ug/L	< 0.005			0.005	Pass	
Chlordane	ug/L	< 0.002			0.002	Pass	
Chlorothalonil	ug/L	< 0.01			0.01	Pass	
Chlorpyrifos	ug/L	< 0.005			0.005	Pass	
Diazinon	ug/L	< 0.01			0.01	Pass	
Dieldrin	ug/L	< 0.001			0.001	Pass	
Endosulfan I	ug/L	< 0.001			0.001	Pass	
Endosulfan II	ug/L	< 0.001			0.001	Pass	
Endosulfan Sulfate	ug/L	< 0.001			0.001	Pass	
Endrin	ug/L	< 0.01			0.01	Pass	
Ethion	ug/L	< 0.01			0.01	Pass	
Fenitrothion	ug/L	< 0.01			0.01	Pass	
Fipronil	ug/L	< 0.02			0.02	Pass	
Hexachlorobenzene (HCB)	ug/L	< 0.001			0.001	Pass	
Heptachlor Epoxide	ug/L	< 0.001			0.001	Pass	
Heptachlor	ug/L	< 0.001			0.001	Pass	
Lindane	ug/L	< 0.001			0.001	Pass	
Malathion	ug/L	< 0.01			0.01	Pass	
Methoxychlor	ug/L	< 0.02			0.02	Pass	
o.p-DDT	ug/L	< 0.001			0.001	Pass	
Oxychlordane	ug/L	< 0.001			0.001	Pass	
p.p-DDD	ug/L	< 0.001			0.001	Pass	
p.p-DDE	ug/L	< 0.001			0.001	Pass	
p.p-DDT	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Parathion Ethyl	ug/L	< 0.02			0.02	Pass	
Parathion Methyl	ug/L	< 0.02			0.02	Pass	
Trifluralin	ug/L	< 0.01			0.01	Pass	
Vinclozolin	ug/L	< 0.02			0.02	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.02			0.02	Pass	
Chloride	mg/L	< 5			5	Pass	
Nitrate (as N)	mg/L	< 0.01			0.01	Pass	
NOx (as N)	mg/L	< 0.01			0.01	Pass	
Sulfate (as SO4)	mg/L	< 1			1	Pass	
Total Dissolved Solids Dried at 180 °C ± 2 °C	mg/L	< 5			5	Pass	
Total Nitrogen	mg/L	< 0.2			0.2	Pass	
Total Phosphorus	mg/L	< 0.01			0.01	Pass	
Total Suspended Solids Dried at 103°C to 105°C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 5			5	Pass	
Hydroxide Alkalinity (as CaCO3)	mg/L	< 5			5	Pass	
Method Blank							
Heavy Metals							
Aluminium	mg/L	< 0.05			0.05	Pass	
Aluminium (filtered)	mg/L	< 0.05			0.05	Pass	
Arsenic	mg/L	< 0.001			0.001	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Iron	mg/L	< 0.01			0.01	Pass	
Iron (filtered)	mg/L	< 0.01			0.01	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Molybdenum (filtered)	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Selenium	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
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							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
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	< 0.005			0.005	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)*	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	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	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	101			70-130	Pass	
TRH C10-C14	%	99			70-130	Pass	
TRH C6-C10	%	98			70-130	Pass	
TRH >C10-C16	%	103			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	95			70-130	Pass	
Toluene	%	98			70-130	Pass	
Ethylbenzene	%	99			70-130	Pass	
m&p-Xylenes	%	96			70-130	Pass	
o-Xylene	%	98			70-130	Pass	
Xylenes - Total*	%	97			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	111			70-130	Pass	
LCS - % Recovery							
OCOP in Water							
Aldrin	%	116			60-120	Pass	
alpha-BHC (HCH)	%	90			60-120	Pass	
beta-BHC (HCH)	%	115			60-120	Pass	
delta-BHC (HCH)	%	112			60-120	Pass	
Chlordane	%	110			60-120	Pass	
Chlorothalonil	%	101			60-120	Pass	
Dieldrin	%	96			60-120	Pass	
Endosulfan II	%	97			60-120	Pass	
Endosulfan Sulfate	%	112			60-120	Pass	
Endrin	%	104			60-120	Pass	
Hexachlorobenzene (HCB)	%	117			60-120	Pass	
Heptachlor Epoxide	%	114			60-120	Pass	
Heptachlor	%	111			60-120	Pass	
Lindane	%	110			60-120	Pass	
Methoxychlor	%	112			60-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Oxychlordane	%	98			60-120	Pass	
p.p-DDD	%	105			60-120	Pass	
p.p-DDE	%	111			60-120	Pass	
p.p-DDT	%	99			60-120	Pass	
LCS - % Recovery							
Total Dissolved Solids Dried at 180 °C ± 2 °C	%	97			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Aluminium	%	101			80-120	Pass	
Aluminium (filtered)	%	93			80-120	Pass	
Arsenic	%	93			80-120	Pass	
Chromium	%	94			80-120	Pass	
Iron	%	95			80-120	Pass	
Iron (filtered)	%	88			80-120	Pass	
Manganese	%	98			80-120	Pass	
Molybdenum (filtered)	%	85			80-120	Pass	
Nickel	%	92			80-120	Pass	
Selenium	%	95			80-120	Pass	
Zinc	%	93			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	102			80-120	Pass	
Magnesium	%	102			80-120	Pass	
Potassium	%	116			80-120	Pass	
Sodium	%	104			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	72			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	93			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	86			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	77			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	80			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	78			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	83			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	78			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	78			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	82			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	83			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	76			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	78			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	80			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	79			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	81			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	81			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	82			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	112			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	82			50-150	Pass	
LCS - % Recovery							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra trace									
Perfluorobutanesulfonic acid (PFBS)			%	78			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)*			%	78			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)*			%	75			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	71			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	80			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	77			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	83			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	L24-De0019143	NCP	%	105			70-130	Pass	
TRH C10-C14	L24-De0019143	NCP	%	103			70-130	Pass	
TRH C6-C10	L24-De0019143	NCP	%	101			70-130	Pass	
TRH >C10-C16	L24-De0019143	NCP	%	106			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	L24-De0019143	NCP	%	94			70-130	Pass	
Toluene	L24-De0019143	NCP	%	99			70-130	Pass	
Ethylbenzene	L24-De0019143	NCP	%	104			70-130	Pass	
m&p-Xylenes	L24-De0019143	NCP	%	101			70-130	Pass	
o-Xylene	L24-De0019143	NCP	%	100			70-130	Pass	
Xylenes - Total*	L24-De0019143	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	L24-De0019143	NCP	%	114			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	L24-De0018969	NCP	%	113			80-120	Pass	
Chloride	L24-De0018968	NCP	%	114			70-130	Pass	
Nitrate (as N)	L24-De0018968	NCP	%	108			70-130	Pass	
NOx (as N)	L24-De0018968	NCP	%	105			80-120	Pass	
Sulfate (as SO4)	L24-De0019138	NCP	%	115			70-130	Pass	
Total Nitrogen	L24-De0018969	NCP	%	110			70-130	Pass	
Total Phosphorus	L24-De0018969	NCP	%	96			80-120	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Aluminium	L24-De0026676	NCP	%	100			75-125	Pass	
Aluminium (filtered)	L24-De0019139	NCP	%	94			75-125	Pass	
Arsenic	L24-De0026676	NCP	%	85			75-125	Pass	
Chromium	L24-De0026676	NCP	%	89			75-125	Pass	
Iron	L24-De0026676	NCP	%	91			75-125	Pass	
Iron (filtered)	L24-De0019139	NCP	%	88			75-125	Pass	
Manganese	L24-De0026676	NCP	%	93			75-125	Pass	
Molybdenum (filtered)	L24-De0019139	NCP	%	95			75-125	Pass	
Nickel	L24-De0026676	NCP	%	85			75-125	Pass	
Selenium	L24-De0026676	NCP	%	92			75-125	Pass	
Zinc	L24-De0026676	NCP	%	86			75-125	Pass	
Spike - % Recovery									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1					
Calcium	L24-De0026676	NCP	%	85			75-125	Pass	
Magnesium	L24-De0026676	NCP	%	92			75-125	Pass	
Potassium	L24-De0026676	NCP	%	109			75-125	Pass	
Sodium	L24-De0026676	NCP	%	77			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	L24-De0020327	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	L24-De0020328	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C15-C28	L24-De0020328	NCP	mg/L	< 0.04	< 0.04	<1	30%	Pass	
TRH C29-C36	L24-De0020328	NCP	mg/L	< 0.04	< 0.04	<1	30%	Pass	
TRH C6-C10	L24-De0020327	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	L24-De0020328	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C16-C34	L24-De0020328	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C34-C40	L24-De0020328	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	L24-De0020327	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	L24-De0020327	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	L24-De0020327	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	L24-De0020327	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	L24-De0020327	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	L24-De0020327	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	L24-De0020327	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	L24-De0018968	NCP	mg/L	< 0.02	< 0.02	<1	20%	Pass	
Chloride	L24-De0018969	NCP	mg/L	120	130	6.0	30%	Pass	
Conductivity (at 25 °C)	L24-De0020113	NCP	uS/cm	7300	7400	1.0	30%	Pass	
Nitrate (as N)	L24-De0018610	NCP	mg/L	0.24	0.26	7.0	30%	Pass	
NOx (as N)	L24-De0018610	NCP	mg/L	0.26	0.26	1.0	20%	Pass	
pH (at 25 °C)	L24-De0020113	NCP	pH Units	8.0	7.9	<1	30%	Pass	
Sulfate (as SO4)	L24-De0020053	NCP	mg/L	1400	1400	<1	30%	Pass	
Total Dissolved Solids Dried at 180 °C ± 2 °C	L24-De0020113	NCP	mg/L	4400	4400	1.0	30%	Pass	
Total Nitrogen	L24-De0018610	NCP	mg/L	0.4	0.4	<1	30%	Pass	
Total Phosphorus	L24-De0018968	NCP	mg/L	0.07	0.08	16	20%	Pass	
Total Suspended Solids Dried at 103°C to 105°C	L24-Jl0048636	NCP	mg/L	44	40	9.5	20%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Aluminium	L24-De0026675	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Aluminium (filtered)	L24-De0019138	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Arsenic	L24-De0026675	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chromium	L24-De0026675	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Iron	L24-De0026675	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Iron (filtered)	L24-De0019138	NCP	mg/L	0.90	0.88	2.0	30%	Pass	
Manganese	L24-De0026675	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Molybdenum (filtered)	L24-De0019138	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nickel	L24-De0026675	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Selenium	L24-De0026675	NCP	mg/L	0.001	< 0.001	56	30%	Fail	Q15
Zinc	L24-De0026675	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD			
Calcium	L24-De0026675	NCP	mg/L	51	51	<1	30%	Pass	
Magnesium	L24-De0026675	NCP	mg/L	14	13	5.0	30%	Pass	
Potassium	L24-De0026675	NCP	mg/L	5.9	5.9	<1	30%	Pass	
Sodium	L24-De0026675	NCP	mg/L	59	58	2.0	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

Qualifier Codes/Comments

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

Authorised by:

Kim Rodgers	Analytical Services Manager
Kim Rodgers	Senior Analyst-PFAS
Luke Holt	Senior Analyst-Inorganic
Patrick Patfield	Senior Analyst-Organic
Patrick Patfield	Senior Analyst-Volatile
Sam Becker	Senior Analyst-Inorganic
Sean Sangster	Senior Analyst-Metal



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request

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

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ **Sydney Laboratory** 179 Magowar Road, Girraween, NSW 2145 +61 2 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1/21 Smallwood Place, Murarrie, QLD 4172 +61 7 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** 46-48 Banksia Road, Welshpool, WA 6106 +61 8 6253 4444 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 EnviroSampleVic@eurofins.com

Company	Senversa	**Project №**	P21560	**Project Manager**	Paul Monaco
Address	lvl 18, 140 St Georges Terrace, Perth WA 6000	**Project Name**	Anketell Road DSI	**EDD Format** ESdat, EQuIS etc	
Contact Name	Paul Monaco				
Phone №	0434 152 590				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	Toby Spencer				
Handed over by					
Email for Invoice	Paul.monaco@senversa.com.au				
Email for Results	Paul.monaco@senversa.com.au				

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not ticked.

♦Surcharge will apply

☐ Overnight (reporting by 9am)♦
☐ Same day♦ ☐ 1 day♦
☐ 2 days♦ ☐ 3 days♦
☐ 5 days (Standard)
☐ Other( )

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	PFAS-30 compound ultra trace LOR	ASS Groundwater quality suite - R14	Suite B14	Dissolved metals (Al, Mo)	Suite B1	Suite B11A	Nitrate	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	QC218	16/01/25	W	X	X	X	X	X	X	X									
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
	Total Counts			1	1	1	1	1	1	1									

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name		Signature		Date	Time	
Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	20/01/25	Time	07:55	Temperature 15.1
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report № 1178931

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

QS3009_R12 AU COC (2) Modified by: T. Wong. Approved by: A. Black Approved on: 18 November 2022

www.eurofins.com.au EnviroSales@eurofinsanz.com

Eurofins ARL Pty Ltd ABN: 91 05 0159 898

Perth	Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
46-48 Banksia Road	6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Welshpool	Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
WA 6106	VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 8 6253 4444	+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 2377	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 2370 & 2554	Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

Eurofins Environment Testing Australia Pty Ltd ABN: 50 005 085 521

Eurofins Environment Testing NZ Ltd NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	Senversa Pty Ltd WA
Contact name:	Paul Monaco
Project name:	ANKETELL ROAD DSI
Project ID:	P21560
Turnaround time:	5 Day
Date/Time received	Jan 20, 2025 7:55 AM
Eurofins reference	1178931

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	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.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Elden Garrett on phone : 0892519602 or by email: Elden.Garrett@eurofinsanz.com

Results will be delivered electronically via email to Paul Monaco - paul.monaco@senversa.com.au.

Note: A copy of these results will also be delivered to the general Senversa Pty Ltd WA email address.

Global Leader - Results you can trust

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Site# 2370 & 2554

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Site# 18217

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web: www.eurofins.com.au
email: EnviroSales@eurofinsanz.com

Company Name: Senversa Pty Ltd WA
Address: Level 18, 140 St Georges Terrace
Perth
WA 6000

Project Name: ANKETELL ROAD DSI
Project ID: P21560

Order No.:
Report #: 1178931
Phone: 0863240200
Fax: 0396060074

Received: Jan 20, 2025 7:55 AM
Due: Jan 28, 2025
Priority: 5 Day
Contact Name: Paul Monaco

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						Molybdenum (filtered)	Nitrate (as N)	Alkali Metals	Eurofins Suite B1	Eurofins Suite B11E: Cl/SO4/Alkalinity	OCOP in Water	ASS Dewatering Suite - WA Department of Environment and Conservation	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370 & 2554						X	X	X	X	X	X	X	X
Melbourne Laboratory - NATA # 1261 Site # 1254												X	
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	QC218	Jan 16, 2025		Water	L25-Ja0026919	X	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1	1

Senversa Pty Ltd (WA)
Level 18, 140 St Georges Terrace
Perth
WA 6000

NATA Accredited
Accreditation Number 2377
Site Number 2370 & 2554

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

Attention: **Paul Monaco**

Report **1178931-W**
Project name ANKETELL ROAD DSI
Project ID P21560
Received Date Jan 20, 2025

Client Sample ID			**QC218**
Sample Matrix			**Water**
Eurofins Sample No.			**L25-Ja0026919**
Date Sampled			**Jan 16, 2025**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.02	mg/L	< 0.02
TRH C15-C28	0.04	mg/L	< 0.04
TRH C29-C36	0.04	mg/L	< 0.04
TRH C10-C36 (Total)	0.04	mg/L	< 0.04
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.02	mg/L	< 0.02
TRH >C10-C16 less Naphthalene (F2)*[N01]	0.02	mg/L	< 0.02
TRH >C16-C34	0.05	mg/L	< 0.05
TRH >C34-C40	0.05	mg/L	< 0.05
TRH >C10-C40 (total)*	0.05	mg/L	< 0.05
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
BTEX			
4-Bromofluorobenzene (surr.)	1	%	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.001	mg/L	< 0.001
OCOP in Water			
Aldrin	0.001	ug/L	< 0.001
alpha-BHC (HCH)	0.001	ug/L	< 0.001
beta-BHC (HCH)	0.001	ug/L	< 0.001
delta-BHC (HCH)	0.001	ug/L	< 0.001
Bifenthrin	0.05	ug/L	< 0.05
Bromophos Ethyl	0.005	ug/L	< 0.005
Chlordane	0.002	ug/L	< 0.002
Chlorothalonil	0.01	ug/L	< 0.01
Chlorpyrifos	0.005	ug/L	< 0.005
Diazinon	0.01	ug/L	< 0.01
Dieldrin	0.001	ug/L	< 0.001

Client Sample ID			QC218
Sample Matrix			Water
Eurofins Sample No.			L25-Ja0026919
Date Sampled			Jan 16, 2025
Test/Reference	LOR	Unit	
OCOP in Water			
Endosulfan I	0.001	ug/L	< 0.001
Endosulfan II	0.001	ug/L	< 0.001
Endosulfan Sulfate	0.001	ug/L	< 0.001
Endrin	0.01	ug/L	< 0.01
Ethion	0.01	ug/L	< 0.01
Fenitrothion	0.01	ug/L	< 0.01
Fipronil	0.02	ug/L	< 0.02
Hexachlorobenzene (HCB)	0.001	ug/L	< 0.001
Heptachlor Epoxide	0.001	ug/L	< 0.001
Heptachlor	0.001	ug/L	< 0.001
Lindane	0.001	ug/L	< 0.001
Malathion	0.01	ug/L	< 0.01
Methoxychlor	0.02	ug/L	< 0.02
o.p-DDT	0.001	ug/L	< 0.001
Oxychlordane	0.001	ug/L	< 0.001
p.p-DDD	0.001	ug/L	< 0.001
p.p-DDE	0.001	ug/L	< 0.001
p.p-DDT	0.001	ug/L	< 0.001
Parathion Ethyl	0.02	ug/L	< 0.02
Parathion Methyl	0.02	ug/L	< 0.02
Trifluralin	0.01	ug/L	< 0.01
Vinclozolin	0.02	ug/L	< 0.02
Acidity (as CaCO3)	10	mg/L	17
Ammonia (as N)	0.02	mg/L	7.2
Chloride	5	mg/L	160
Conductivity (at 25 °C)	10	uS/cm	1500
Nitrate (as N)	0.01	mg/L	0.26
NOx (as N)	0.01	mg/L	0.28
pH (at 25 °C)	0.1	pH Units	7.7
Sulfate (as SO4)	1	mg/L	190
Sulphide (as H2S)	0.05	mg/L	< 0.05
Total Dissolved Solids Dried at 180 °C ± 2 °C	5	mg/L	880
Total Kjeldahl Nitrogen	0.2	mg/L	7.2
Total Nitrogen	0.2	mg/L	7.5
Total Phosphorus	0.01	mg/L	0.05
Total Suspended Solids Dried at 103°C to 105°C	5	mg/L	75
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO3)	5	mg/L	470
Carbonate Alkalinity (as CaCO3)	5	mg/L	< 5
Hydroxide Alkalinity (as CaCO3)	5	mg/L	< 5
Total Alkalinity (as CaCO3)	5	mg/L	470
Heavy Metals			
Aluminium	0.05	mg/L	0.79
Aluminium (filtered)	0.05	mg/L	< 0.05
Arsenic	0.001	mg/L	0.004
Chromium	0.001	mg/L	0.002
Iron	0.01	mg/L	0.79
Iron (filtered)	0.01	mg/L	0.03

Client Sample ID			QC218
Sample Matrix			Water
Eurofins Sample No.			L25-Ja0026919
Date Sampled			Jan 16, 2025
Test/Reference	LOR	Unit	
Heavy Metals			
Manganese	0.005	mg/L	0.51
Molybdenum (filtered)	0.001	mg/L	0.006
Nickel	0.001	mg/L	0.003
Selenium	0.001	mg/L	0.006
Zinc	0.005	mg/L	0.007
Eurofins Suite B11C: Na/K/Ca/Mg			
Calcium	0.5	mg/L	100
Magnesium	0.5	mg/L	23
Potassium	0.5	mg/L	24
Sodium	0.5	mg/L	180
Perfluoroalkyl sulfonamido substances- 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	%	67
D3-N-MeFOSA (surr.)	1	%	133
D5-N-EtFOSA (surr.)	1	%	150
D7-N-MeFOSE (surr.)	1	%	74
D9-N-EtFOSE (surr.)	1	%	79
D5-N-EtFOSAA (surr.)	1	%	79
D3-N-MeFOSAA (surr.)	1	%	78
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	0.041
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	0.026
Perfluoroheptanoic acid (PFHpA)[N11]	0.005	ug/L	0.025
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	[N09]0.079
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	0.002
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA)[N15]	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA)[N11]	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA)[N11]	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	106
13C5-PFPeA (surr.)	1	%	92
13C5-PFHxA (surr.)	1	%	97
13C4-PFHpA (surr.)	1	%	103
13C8-PFOA (surr.)	1	%	94
13C5-PFNA (surr.)	1	%	95
13C6-PFDA (surr.)	1	%	88
13C2-PFUnDA (surr.)	1	%	82
13C2-PFDoDA (surr.)	1	%	70
13C2-PFTeDA (surr.)	1	%	55

Client Sample ID			QC218
Sample Matrix			Water
Eurofins Sample No.			L25-Ja0026919
Date Sampled			Jan 16, 2025
Test/Reference	LOR	Unit	
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.005	ug/L	0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	112
13C2-6:2 FTSA (surr.)	1	%	129
13C2-8:2 FTSA (surr.)	1	%	118
13C2-10:2 FTSA (surr.)	1	%	100
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra trace			
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	0.015
Perfluorononanesulfonic acid (PFNS)*[N15]	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.0001	ug/L	0.045
Perfluoropropanesulfonic acid (PFPrS)*[N15]	0.001	ug/L	0.007
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.001	ug/L	[N09]0.012
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	[N09]0.18
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.001	ug/L	0.002
Perfluorodecanesulfonic acid (PFDS)[N15]	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	103
18O2-PFHxS (surr.)	1	%	109
13C8-PFOS (surr.)	1	%	101
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	0.225
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.304
Sum of PFASs (n=30)*	0.005	ug/L	0.44
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.124
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.416

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Jan 20, 2025	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Jan 20, 2025	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Jan 20, 2025	7 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Jan 20, 2025	14 Days
OCOP in Water - Method: ARL No. 002 - OCOP and PCB in Water	Welshpool	Jan 20, 2025	7 Days
Nitrate (as N) - Method: ARL313/319 - NOx in Water by Discrete Analyser	Welshpool	Jan 20, 2025	28 Days
Heavy Metals (filtered) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Jan 20, 2025	28 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Jan 21, 2025	180 Days
Acidity (as CaCO3) - Method: LTM-INO-4210 Acidity	Welshpool	Jan 20, 2025	14 Days
Ammonia (as N) - Method: ARL303 - Ammonia in Water by Discrete Analyser	Welshpool	Jan 20, 2025	28 Days
Chloride - Method: ARL305 - Chloride in Water by Discrete Analyser	Welshpool	Jan 20, 2025	28 Days
Conductivity (at 25 °C) - Method: LTM-INO-4030 Conductivity	Welshpool	Jan 20, 2025	28 Days
NOx (as N) - Method: ARL313/319 - NOx in Water by Discrete Analyser	Welshpool	Jan 20, 2025	28 Days
pH (at 25 °C) - Method: LTM-GEN-7090 pH in water by ISE	Welshpool	Jan 20, 2025	6 Hours
Sulfate (as SO4) - Method: ARL301 - Sulfate in Water by Discrete Analyser	Welshpool	Jan 20, 2025	28 Days
Sulphide (as H2S) - Method: LTM-INO-4011 Determination of Sulfide	Melbourne	Jan 31, 2025	7 Days
Total Dissolved Solids Dried at 180 °C ± 2 °C - Method: ARL No. 017 - Total Dissolved Solids	Welshpool	Jan 20, 2025	7 Days
Total Kjeldahl Nitrogen - Method: ARL No. 330 - Persulfate Method for Simultaneous Determination of TN & TP	Welshpool	Jan 20, 2025	28 Day
Total Nitrogen - Method: ARL No. 330 - Persulfate Method for Simultaneous Determination of TN & TP	Welshpool	Jan 20, 2025	28 Days
Total Phosphorus - Method: ARL308 - Total Phosphorus in Water by Discrete Analyser	Welshpool	Jan 20, 2025	28 Days
Total Suspended Solids Dried at 103°C to 105°C - Method: ARL No. 016 - Total Suspended Solids	Welshpool	Jan 20, 2025	7 Days
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Welshpool	Jan 20, 2025	14 Days
Dewatering Metals : Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Jan 20, 2025	6 Months
Perfluoroalkyl sulfonamido substances- Trace - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Jan 29, 2025	28 Days
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Jan 29, 2025	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Welshpool	Jan 29, 2025	28 Days

Description	Testing Site	Extracted	Holding Time
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS			
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra trace	Welshpool	Jan 29, 2025	28 Days
- Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS (ultra trace)			

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Project ID: P21560

Order No.:
Report #: 1178931
Phone: 0863240200
Fax: 0396060074

Received: Jan 20, 2025 7:55 AM
Due: Jan 28, 2025
Priority: 5 Day
Contact Name: Paul Monaco

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						Molybdenum (filtered)	Nitrate (as N)	Alkali Metals	Eurofins Suite B1	Eurofins Suite B11E: Cl/SO4/Alkalinity	OCOP in Water	ASS Dewatering Suite - WA Department of Environment and Conservation	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370 & 2554						X	X	X	X	X	X	X	X
Melbourne Laboratory - NATA # 1261 Site # 1254												X	
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	QC218	Jan 16, 2025		Water	L25-Ja0026919	X	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1	1

Internal Quality Control Review and Glossary

General

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

Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

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

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

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - 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.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

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%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as 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 are not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.02			0.02	Pass	
TRH C15-C28	mg/L	< 0.04			0.04	Pass	
TRH C29-C36	mg/L	< 0.04			0.04	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.02			0.02	Pass	
TRH >C16-C34	mg/L	< 0.05			0.05	Pass	
TRH >C34-C40	mg/L	< 0.05			0.05	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.001			0.001	Pass	
Method Blank							
OCOP in Water							
Aldrin	ug/L	< 0.001			0.001	Pass	
alpha-BHC (HCH)	ug/L	< 0.001			0.001	Pass	
beta-BHC (HCH)	ug/L	< 0.001			0.001	Pass	
delta-BHC (HCH)	ug/L	< 0.001			0.001	Pass	
Bifenthrin	ug/L	< 0.05			0.05	Pass	
Bromophos Ethyl	ug/L	< 0.005			0.005	Pass	
Chlordane	ug/L	< 0.002			0.002	Pass	
Chlorothalonil	ug/L	< 0.01			0.01	Pass	
Chlorpyrifos	ug/L	< 0.005			0.005	Pass	
Diazinon	ug/L	< 0.01			0.01	Pass	
Dieldrin	ug/L	< 0.001			0.001	Pass	
Endosulfan I	ug/L	< 0.001			0.001	Pass	
Endosulfan II	ug/L	< 0.001			0.001	Pass	
Endosulfan Sulfate	ug/L	< 0.001			0.001	Pass	
Endrin	ug/L	< 0.01			0.01	Pass	
Ethion	ug/L	< 0.01			0.01	Pass	
Fenitrothion	ug/L	< 0.01			0.01	Pass	
Fipronil	ug/L	< 0.02			0.02	Pass	
Hexachlorobenzene (HCB)	ug/L	< 0.001			0.001	Pass	
Heptachlor Epoxide	ug/L	< 0.001			0.001	Pass	
Heptachlor	ug/L	< 0.001			0.001	Pass	
Lindane	ug/L	< 0.001			0.001	Pass	
Malathion	ug/L	< 0.01			0.01	Pass	
Methoxychlor	ug/L	< 0.02			0.02	Pass	
o.p-DDT	ug/L	< 0.001			0.001	Pass	
Oxychlordane	ug/L	< 0.001			0.001	Pass	
p.p-DDD	ug/L	< 0.001			0.001	Pass	
p.p-DDE	ug/L	< 0.001			0.001	Pass	
p.p-DDT	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Parathion Ethyl	ug/L	< 0.02			0.02	Pass	
Parathion Methyl	ug/L	< 0.02			0.02	Pass	
Trifluralin	ug/L	< 0.01			0.01	Pass	
Vinclozolin	ug/L	< 0.02			0.02	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.02			0.02	Pass	
Chloride	mg/L	< 5			5	Pass	
Nitrate (as N)	mg/L	< 0.01			0.01	Pass	
NOx (as N)	mg/L	< 0.01			0.01	Pass	
Sulfate (as SO4)	mg/L	< 1			1	Pass	
Sulphide (as H2S)	mg/L	< 0.05			0.05	Pass	
Total Dissolved Solids Dried at 180 °C ± 2 °C	mg/L	< 5			5	Pass	
Total Nitrogen	mg/L	< 0.2			0.2	Pass	
Total Phosphorus	mg/L	< 0.01			0.01	Pass	
Total Suspended Solids Dried at 103°C to 105°C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 5			5	Pass	
Hydroxide Alkalinity (as CaCO3)	mg/L	< 5			5	Pass	
Method Blank							
Heavy Metals							
Aluminium	mg/L	< 0.05			0.05	Pass	
Aluminium (filtered)	mg/L	< 0.05			0.05	Pass	
Arsenic	mg/L	< 0.001			0.001	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Iron	mg/L	< 0.01			0.01	Pass	
Iron (filtered)	mg/L	< 0.01			0.01	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Molybdenum (filtered)	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Selenium	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
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							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
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	< 0.005			0.005	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)*	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.0001			0.0001	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	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	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	90			70-130	Pass	
TRH C10-C14	%	94			70-130	Pass	
TRH C6-C10	%	85			70-130	Pass	
TRH >C10-C16	%	94			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	90			70-130	Pass	
Toluene	%	85			70-130	Pass	
Ethylbenzene	%	101			70-130	Pass	
m&p-Xylenes	%	96			70-130	Pass	
o-Xylene	%	96			70-130	Pass	
Xylenes - Total*	%	96			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	99			70-130	Pass	
LCS - % Recovery							
OCOP in Water							
Aldrin	%	96			60-120	Pass	
alpha-BHC (HCH)	%	90			60-120	Pass	
beta-BHC (HCH)	%	102			60-120	Pass	
delta-BHC (HCH)	%	95			60-120	Pass	
Chlordane	%	94			60-120	Pass	
Chlorothalonil	%	89			60-120	Pass	
Dieldrin	%	97			60-120	Pass	
Endosulfan II	%	83			60-120	Pass	
Endosulfan Sulfate	%	101			60-120	Pass	
Endrin	%	88			60-120	Pass	
Hexachlorobenzene (HCB)	%	89			60-120	Pass	
Heptachlor Epoxide	%	85			60-120	Pass	
Heptachlor	%	87			60-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lindane	%	85			60-120	Pass	
Methoxychlor	%	94			60-120	Pass	
Oxychlordane	%	90			60-120	Pass	
p.p-DDD	%	85			60-120	Pass	
p.p-DDE	%	84			60-120	Pass	
p.p-DDT	%	89			60-120	Pass	
LCS - % Recovery							
Total Dissolved Solids Dried at 180 °C ± 2 °C	%	99			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Aluminium	%	104			80-120	Pass	
Aluminium (filtered)	%	92			80-120	Pass	
Arsenic	%	100			80-120	Pass	
Chromium	%	95			80-120	Pass	
Iron	%	98			80-120	Pass	
Iron (filtered)	%	103			80-120	Pass	
Manganese	%	95			80-120	Pass	
Molybdenum (filtered)	%	94			80-120	Pass	
Nickel	%	85			80-120	Pass	
Selenium	%	97			80-120	Pass	
Zinc	%	90			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	97			80-120	Pass	
Magnesium	%	104			80-120	Pass	
Potassium	%	107			80-120	Pass	
Sodium	%	107			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	84			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	118			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	90			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	86			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	88			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	84			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	86			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	84			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	86			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	118			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	92			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	84			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	104			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	86			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	82			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	86			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	82			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	84			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	92			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra trace									
Perfluorobutanesulfonic acid (PFBS)			%	80			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)*			%	86			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	88			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)*			%	92			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	84			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	84			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	86			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	L25-Ja0026485	NCP	%	102			70-130	Pass	
TRH C10-C14	L25-Ja0023320	NCP	%	91			70-130	Pass	
TRH C6-C10	L25-Ja0026485	NCP	%	96			70-130	Pass	
TRH >C10-C16	L25-Ja0023320	NCP	%	91			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	L25-Ja0026485	NCP	%	77			70-130	Pass	
Toluene	L25-Ja0026485	NCP	%	94			70-130	Pass	
Ethylbenzene	L25-Ja0026485	NCP	%	114			70-130	Pass	
m&p-Xylenes	L25-Ja0026485	NCP	%	110			70-130	Pass	
o-Xylene	L25-Ja0026485	NCP	%	110			70-130	Pass	
Xylenes - Total*	L25-Ja0026485	NCP	%	110			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	L25-Ja0026485	NCP	%	108			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	L25-Ja0024688	NCP	%	104			80-120	Pass	
Chloride	L25-Ja0027238	NCP	%	102			70-130	Pass	
Nitrate (as N)	L25-Ja0024688	NCP	%	81			70-130	Pass	
NOx (as N)	L25-Ja0024688	NCP	%	91			80-120	Pass	
Sulfate (as SO4)	L25-Ja0027238	NCP	%	98			70-130	Pass	
Total Nitrogen	L25-Ja0026919	CP	%	106			70-130	Pass	
Total Phosphorus	L25-Ja0026919	CP	%	96			80-120	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Aluminium	L25-Ja0023740	NCP	%	80			75-125	Pass	
Arsenic	L25-Ja0023740	NCP	%	82			75-125	Pass	
Chromium	L25-Ja0023740	NCP	%	73			75-125	Fail	Q08
Iron	L25-Ja0023740	NCP	%	76			75-125	Pass	
Manganese	L25-Ja0023740	NCP	%	76			75-125	Pass	
Nickel	L25-Ja0023740	NCP	%	68			75-125	Fail	Q08
Selenium	L25-Ja0023740	NCP	%	101			75-125	Pass	
Zinc	L25-Ja0023740	NCP	%	70			75-125	Fail	Q08
Spike - % Recovery									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1					
Calcium	L25-Ja0023740	NCP	%	76			75-125	Pass	
Magnesium	L25-Ja0023740	NCP	%	81			75-125	Pass	
Potassium	L25-Ja0023740	NCP	%	91			75-125	Pass	
Sodium	L25-Ja0023740	NCP	%	Q05			75-125	Fail	Q05

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	L25-Ja0026919	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	L25-Ja0026772	NCP	mg/L	3.6	3.6	1.0	30%	Pass	
TRH C15-C28	L25-Ja0026772	NCP	mg/L	5.2	5.3	2.0	30%	Pass	
TRH C29-C36	L25-Ja0026772	NCP	mg/L	< 0.04	< 0.04	<1	30%	Pass	
TRH C6-C10	L25-Ja0026919	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	L25-Ja0026772	NCP	mg/L	5.7	5.7	<1	30%	Pass	
TRH >C16-C34	L25-Ja0026772	NCP	mg/L	2.9	3.0	4.0	30%	Pass	
TRH >C34-C40	L25-Ja0026772	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	L25-Ja0026919	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	L25-Ja0026919	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	L25-Ja0026919	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	L25-Ja0026919	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	L25-Ja0026919	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	L25-Ja0026919	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	L25-Ja0026919	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	L25-Ja0026919	CP	mg/L	7.2	8.3	<1	20%	Pass	
Chloride	L25-Ja0026919	CP	mg/L	160	170	4.0	30%	Pass	
Conductivity (at 25 °C)	L25-Ja0023311	NCP	uS/cm	3900	3900	1.0	30%	Pass	
Nitrate (as N)	L25-Ja0026919	CP	mg/L	0.26	0.25	3.0	30%	Pass	
NOx (as N)	L25-Ja0026919	CP	mg/L	0.28	0.27	3.0	20%	Pass	
pH (at 25 °C)	L25-Ja0023311	NCP	pH Units	7.9	7.8	1.0	30%	Pass	
Sulfate (as SO4)	L25-Ja0026919	CP	mg/L	190	190	1.0	30%	Pass	
Total Dissolved Solids Dried at 180 °C ± 2 °C	L25-Ja0023311	NCP	mg/L	2300	2400	1.0	30%	Pass	
Total Nitrogen	L25-Ja0024691	NCP	mg/L	0.2	0.3	27	30%	Pass	
Total Phosphorus	L25-Ja0024691	NCP	mg/L	< 0.01	< 0.01	<1	20%	Pass	
Total Suspended Solids Dried at 103°C to 105°C	L25-Ja0023966	NCP	mg/L	120	150	22	20%	Fail	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Aluminium	L25-Ja0027235	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Arsenic	L25-Ja0027235	NCP	mg/L	0.16	0.16	3.0	30%	Pass	
Chromium	L25-Ja0027235	NCP	mg/L	0.001	0.001	4.0	30%	Pass	
Iron	L25-Ja0027235	NCP	mg/L	0.05	0.03	47	30%	Fail	Q15
Manganese	L25-Ja0027235	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Nickel	L25-Ja0027235	NCP	mg/L	0.89	0.90	2.0	30%	Pass	
Selenium	L25-Ja0027235	NCP	mg/L	0.007	0.008	16	30%	Pass	
Zinc	L25-Ja0027235	NCP	mg/L	0.009	0.009	2.0	30%	Pass	
Duplicate									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD			
Calcium	L25-Ja0027235	NCP	mg/L	15	16	2.0	30%	Pass	
Magnesium	L25-Ja0027235	NCP	mg/L	2.8	3.0	4.0	30%	Pass	
Potassium	L25-Ja0027235	NCP	mg/L	680	700	3.0	30%	Pass	
Sodium	L25-Ja0027235	NCP	mg/L	74	77	4.0	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	L25-Ja0032651	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L25-Ja0032651	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L25-Ja0032651	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L25-Ja0035000	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L25-Ja0035000	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L25-Ja0032651	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L25-Ja0032651	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	L25-Ja0035000	NCP	ug/L	0.006	0.006	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	L25-Ja0032651	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L25-Ja0032651	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra trace				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)*	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	L25-Ja0032651	NCP	ug/L	0.0001	0.0001	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L25-Ja0035000	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	L25-Ja0035000	NCP	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	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q05	The matrix spike concentration is less than five times the background concentration in the sample - therefore the spike recovery cannot be determined
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Kim Rodgers	Analytical Services Manager
Kim Rodgers	Senior Analyst-PFAS
Lauren Killin	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Inorganic
Patrick Patfield	Senior Analyst-Organic
Patrick Patfield	Senior Analyst-Volatile
Sam Becker	Senior Analyst-Inorganic
Sean Sangster	Senior Analyst-Metal



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request

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

Appendix F: QAQC Report

Appendix F: Quality Assurance / Quality Control

The data quality assurance and control (QA/QC) procedures adopted by Senversa provide a consistent approach to evaluation of whether data quality) required by the project have been achieved. The process focuses on assessment of the useability of the data in terms of accuracy and reliability in forming conclusions on the condition of the element of the environment being investigated. The approach is generally based on guidance from the following sources:

- Australian Standard (AS) 4482.1-2005: Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds.
- National Environment Protection Council (NEPC), National Environment Protection (Assessment of Site Contamination) Amendment Measure No. 1 2013 (NEPM), Schedule B2: Guideline on Site Characterisation.
- NEPC – National Environment Protection (Assessment of Site Contamination) Amendment Measure No. 1 2013 (NEPM), Schedule B3: Guideline on Laboratory Analysis of Potentially Contaminated Soils.
- United States Environmental Protection Agency (USEPA) – Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4).
- USEPA – Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8).

Quality Assurance Procedure

The following data quality objectives, measures and acceptance criteria were adopted to verify compliance with the planned QA procedures:

Quality Assurance Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
Standard Procedures	Comparability, Reproducibility, Representativeness	Standard field sampling procedures and forms used	No deviation from standard procedure and forms used
Equipment Calibration	Accuracy	All equipment calibrated in accordance with manufacturers specifications	All equipment calibrated in accordance with manufacturers specifications
Testing Method Accreditation	Accuracy and Comparability	NATA accredited methods used for all analyses determined	Primary and secondary laboratories to use NATA accredited methods for all analytes determined
Quality Control Sampling Frequency	Precision and Repeatability	Field QC sampling frequency in accordance with AS4482.1-2005	Field Duplicates – ≥ 1 in 20 primary samples/ 1 in 10 primary samples Secondary Duplicates – ≥ 1 in 20 primary samples 1 in 10 primary samples Rinsate Blanks – ≥ 1 per day, per matrix per equipment Trip Blanks – ≥ 1 per esky containing samples for volatile analyses

Quality Assurance Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
	Accuracy, Precision and Comparability	Laboratory QC analysis frequency in accordance with NEPC (2013), Schedule B3	Laboratory Duplicates – at least 1 in 10 analyses or one per process batch Method Blanks – at least 1 per process batch Surrogate Recoveries – all samples spiked where appropriate (e.g. chromatographic analysis of organics) Laboratory Control Samples – at least 1 per process batch Matrix Spikes – at least 1 per matrix type per process batch
Sample Preservation, Handling and Holding Times	Accuracy	Samples appropriately preserved upon collection , stored and transported, and analysed within holding times	Sample containers, holding times and preservation in accordance laboratory specific method requirements.
Data Management	Accuracy	No errors in data transcription	Entry of field data verified by peer.
Data Useability	Completeness	Limits of reporting less than adopted beneficial use investigation levels. Sample volumes and analytical methods selected to enable required limits of reporting to be achieved	Limits of reporting less than investigation levels.

Quality Control Sampling and Analysis

The following data quality objectives, measures and acceptance criteria were adopted to evaluate the validity of the analytical data produced.

Quality Control Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
Field Duplicate Sampling and Analysis	Precision and Field Repeatability	Field duplicate samples used assess the variability in analyte concentration between samples collected from the sample location and the reproducibility of the laboratory analysis. Where required, resubmission of previously analysed samples for chemicals within their holding times may be undertaken to further assess level of precision.	Analysed for same chemicals as primary sample RPD1 <30% of mean concentration where both concentrations >20 x limit of reporting RPD <50% of mean concentration where higher concentration 10 – 20 x limit of reporting RPD - No limit where both concentrations < 10 x limit of reporting
Secondary Duplicate Sampling and Analysis	Accuracy	Results are accurate and free from laboratory error. Secondary duplicate samples sent to a secondary laboratory to assess the accuracy of the analyte concentrations reported by the primary laboratory	Analysed for same chemicals as primary sample RPD <30% of mean concentration where both concentrations >20 x limit of reporting RPD <50% of mean concentration where higher concentration 10 – 20 x limit of reporting RPD - No limit where both concentrations < 10 x limit of reporting

[1] Relative Percent Difference (%): Calculated as: (Result No.1 – Result No. 2/Mean Result)*100

Quality Control Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
Field Rinsate Blank Preparation and Analysis	Accuracy and Representativeness	Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment. Rinsate blank samples prepared for each sampling procedure. Where possible the rinsate blanks are prepared immediately after sampling locations known to contain concentrations of the chemicals of concern above the limit of quantification and / or before sampling locations where the chemicals being targeted in the laboratory analysis are to be compared to investigation levels near the limit of quantification of the chemical.	Analyte concentrations below limits of reporting
Trip Blank Sampling and Analysis	Accuracy and Representativeness	Cross contamination between samples does not occur in transit or as an artefact of the sample handling procedure. Trip blank samples prepared by the laboratory which accompany the empty sampling containers from the laboratory to the sampling site, and return with the samples to the laboratory to assess whether cross contamination occurs between samples or as an artefact of the sampling procedure.	Analyte concentrations below limits of reporting
Laboratory QC Analysis	Laboratory Precision and Accuracy	Laboratory duplicates	As specified by the laboratory.
		Laboratory control spike	Dynamic recovery limits as specified by the laboratory.
		Certified reference material	As specified by the laboratory (generally dynamic recovery limits).
		Surrogate recovery	Dynamic recovery limits as specified by the laboratory.
		Matrix spike recovery	Recovery 70% – 130% or dynamic recovery limits specified by laboratory. However note that recovery of phenols is generally significantly lower and a recovery in the range 20% to 130% is considered acceptable by most laboratories.
		Matrix spike recovery duplicate	RPD < 30%, or as specified by the laboratory.

Data Verification and Validation

The data validation process involved the checking of analytical procedure compliance with acceptance criteria and an assessment of the accuracy and precision of analytical data from the range of quality control indicators generated from both the sampling and analytical programmes.

The checks undertaken are summarised in the attached data validation checklist tables (one table per sample batch/delivery group). Field replicate and field blank analytical results relevant to the project are summarised in **Table H-1**, **Table H-2** and **Table H-3.**

Instances where the data quality acceptance criteria were not achieved are discussed below:

Field QA/QC

Field RPDs and Blank Samples

Replicate and blank samples were collected during the investigation to confirm the repeatability and validity of the sample collection methods and resultant data. The QA/QC sample information is provided in **Table H-1**. RPDs and Blank results are provided in **Appendix H Table 1** to **Table 3**

Table H-1: Field QA/QC Sample Summary

Matrix	Number of Primary Samples	Number of Duplicates Collected	Number of Triplicates Collected	Number of Days Sampling with reusable equipment	Number of Blanks Collected	Field QA/QC Frequency Compliant?
Soil	96	11	11	6	-	Yes (with exceptions)
Groundwater	16	2	2	2	-	Yes
Rinsate Blanks	-	-	-	8	8	Yes
Trip Blanks	-	-	-	-	8	Yes (with exceptions)

Field QAQC Frequency

Field duplicate and triplicate sample frequency largely were analysed at the required rate of 1:20 primary samples or 1:10 primary samples for Per- and Polyfluoroalkyl Substances (PFAS), with the following exceptions.

Soil total recoverable hydrocarbons (TRH), Benzene, Toluene, Ethylbenzene, Xylenes, and Naphthalene (BTEXN) and inorganics primary to duplicate samples were collected at a rate of 3.2%, below the required rate of 5%.

Soil Organochlorine Pesticide (OCP) duplicate and triplicate samples collected at a 3.2%, below the required rate of 5%.

Furthermore, as a result of differing lab methods, soil major ions were analysed as filtered in the primary lab (ALS) and total in the secondary lab (Eurofins), resulting in incomparable RPD results.

Triplicate samples for dissolved metals were only variously analysed as part of the groundwater suite in both groundwater monitoring events (GMEs).

Duplicate/ triplicate samples for physical parameters were not analysed as part of the November GME due to insufficient water volume.

While this does not meet the criteria for field QA/QC frequency, under the NEPC (2013), Schedule B3, this not considered to represent a material risk to data interpretation due to the following reasons.

- The purpose of this detailed site investigation (DSI) was not to re-classify/ ascertain site contamination status but rather identify baseline environmental conditions of the site.
- In the case of TRH, BTEXN and OCP, results were under the laboratory limit of reporting (LOR) in all cases.
- Nutrients and major ions concentrations are largely heterogeneous in nature and therefore prone to RPD variation within primary and duplicate/triplicate samples. Furthermore, major ions are used as a measure of soil physical identification, not assessment of contamination.
- As detailed below, field duplicate and triplicate RPD results non-confirmed with the RPD criteria of <30%.
- Physical parameters were not analysed for the November GME, however due to short holding times of these analytes field parameters are utilised for data interpretation.
- While a complete triplicate dissolved metals suite was not analysed during both GMEs, a complete QAQC analysis was completed for key CoPCs of aluminium, iron, arsenic and molybdenum.

Rinsate blank and triplicate blanks were collected at the required rate of one per day during the soil, groundwater monitoring events. Rinsate blanks were collected from a hand auger (soil investigation) and interface probe (GME)

OCPs were not analysed as part of the rinsate blank suite, this is not considered to materially affect the interpretation as OCPs were not detected above the laboratory LOR at any sample location during either GME, therefore the risk of cross-contamination is unlikely.

Trip blanks were not analysed for PFAS during the November 2024 GME (EP 241796), the rinsate blanks associated with this lab report, a potential measure cross contamination either from transport or laboratory source water did not detect PFAS above the LOR. This non-compliance is not considered to be significant

Intra/Inter Laboratory Duplicate RPDs.

Intra-laboratory Duplicate RPDs

The majority of intra-laboratory duplicate RPDs were within the acceptable limits, except for the following:

Soil

- Calcium (filtered) in primary sample SB020_0.0-0.1 and intra-laboratory duplicate sample QC101 (60%)
- Chromium in primary sample SB020_0.0-0.1 and intra-laboratory duplicate sample QC101 (78%)
- Zinc in primary sample SB020_0.0-0.1 and intra-laboratory duplicate sample QC101 (164%)
- Phosphorus (as P) in primary sample SB034_0.0-0.1 and intra-laboratory duplicate sample QC104 (34%)

Groundwater

- Aluminium in primary sample GBH03 and intra-laboratory duplicate sample QC117 (116%)
- Iron in primary sample GBH03 and intra-laboratory duplicate sample QC117 (116%)
- Aluminium in primary sample GBH04 and intra-laboratory duplicate sample QC118 51%)
- Iron in primary sample GBH04 and intra-laboratory duplicate sample QC117 (49%)

Inter-laboratory Duplicate RPDs

The majority of inter-laboratory duplicate RPDs were within the acceptable limits, except for the following:

Soil

- Chromium in primary sample SB020_0.0-0.1 and inter-laboratory duplicate sample QC201 (83%)

- Lead in primary sample SB020_0.0-0.1 and inter-laboratory duplicate sample QC201 (150%)
- Lead in primary sample SB025_0.0-0.1 and inter-laboratory duplicate sample QC203 (54%)
- Phosphorus (as P) in primary sample SB029_0.0-0.1 and inter-laboratory duplicate sample QC205 (59%).
- Total Kjeldahl Nitrogen in primary sample SB029_0.0-0.1 and inter-laboratory duplicate sample QC205 (37%)
- Total Nitrogen (as N) in primary sample SB029_0.0-0.1 and inter-laboratory duplicate sample QC205 (37%)

Groundwater

- Aluminium in primary sample GBH04 and intra-laboratory duplicate sample QC218 (68%)
- Iron in primary sample GBH04 and intra-laboratory duplicate sample QC218 (77%)
- Phosphorous in primary sample GBH03 and intra-laboratory duplicate sample QC217 (176%)
- Sulfate in primary sample GBH03 and intra-laboratory duplicate sample QC217 (109%)
- Acidity in primary sample GBH04 and intra-laboratory duplicate sample QC218 (74%)
- Perfluorohexanoic acid (PFHxA) in primary sample GBH04 and intra-laboratory duplicate sample QC218 (48%)
- Perfluoropentanoic acid (PFPeA) in primary sample GBH04 and intra-laboratory duplicate sample QC218 (180%)
- Perfluoroheptanoic acid (PFHpA) in primary sample GBH04 and intra-laboratory duplicate sample QC218 (39%)

RPDs were generally within the non-conformance criteria of <30%, with exceptions noted above. A large portion of the RPD non-conformances is related to nutrients and major ions, which are known to be heterogeneous in environmental matrices and potentially result in higher RPD values. The remaining RPD non-conformances are related to analysis of metals, or PFAS were in most cases, the concentrations detected in the primary sample were higher than that of the triplicate. Where the QAQC sample concentrations are greater, as a conservative measure, they have been used for data interpretation.

Field Rinsate Blank Preparation and Analysis

The majority of rinsate blank results were less than the limits of reporting, except for the following:

- EP2415957: Electrical Conductivity (2 µS/cm) was detected in sample QC304
- EP2415807: pH (Lab) (5.38 pH Units) was detected in sample QC302
- EP2415810: pH (Lab) (5.63 pH Units) was detected in sample QC301
- EP2415810: pH (Lab) (5.74 pH Units) was detected in sample QC303
- EP2415957: pH (Lab) (5.51 pH Units) was detected in sample QC304
- EP2500657: pH (Lab) (5.90 pH Units) was detected in sample QC307
- EP2500657: pH (Lab) (6.05 pH Units) was detected in sample QC308
- EP2415807: Acidity (as CaCO3) (1 mg/L) was detected in sample QC302
- EP2415810: Acidity (as CaCO3) (1 mg/L) was detected in sample QC301
- EP2415957: Acidity (as CaCO3) (2 mg/L) was detected in sample QC304
- EP2500657: Acidity (as CaCO3) (2 mg/L) was detected in sample QC307
- EP2500657: Acidity (as CaCO3) (2 mg/L) was detected in sample QC308

A large portion of field rinsate blank non-conformances are related to DI water pH, which can not be less than the LOR, the remaining non-conformances are related to minor detections of acidity or electrical conductivity. As the non-conformances are related to physical DI water parameters, that were

accidentally analysed as part of the laboratory suite and not CoPCs, this is not considered to materially impact the data interpretation.

Trip Blank Sampling and Analysis

No analyte was detected above the LOR in any trip blank sample

Laboratory QA/QC

The laboratory QA/QC compliance summary for the works undertaken are summarised in **Table H-2** below.

Table H-2: Laboratory QA/ QC Compliance Summary

Date	Work order number	NATA accredited methodology	Samples received within holding time	Samples extracted/ analysed within holding time	QC Frequencies	Matrix spike	Laboratory duplicates	Laboratory control spikes	Method Blanks	Surrogates
Soil Sampling										
21/10/2024	EP2415812	✓	✓	✓	*	*	*	*	*	*
17/10/2024	EP2415682	✓	✓	✓	✓	2 x NC	✓	✓	✓	✓
18/10/2024	EP2415807	✓	✓	5 x NC	✓	2 x NC	✓	✓	✓	✓
17-21/10/2024	EP2415810	✓	✓	11x NC	✓	4 x NC	✓	✓	✓	✓
22/10/2024	EP2415937	✓	✓	11x NC	*	*	*	*	*	*
23/10/2024	EP2415903	✓	✓	3x NC	2 x NC	6x NC	✓	✓	✓	✓
24/10/2024	EP2415925	✓	✓	1x NC	2 x NC	2x NC	✓	✓	✓	✓
22/10/2024	EP241597	✓	✓	7x NC	2 x NC	4x NC	✓	✓	✓	✓
17/10/2024	1154927	✓	✓	✓	✓	✓	✓	✓	✓	✓
23/10/2024	1155718	✓	✓	✓	✓	✓	✓	✓	✓	✓
21-22/10/2024	EP2417221	✓	✓	✓	*	*	*	*	*	*
18-21/11/2024	EP2417725	✓	✓	4 x NC	✓	✓	✓	✓	✓	✓
Groundwater Sampling					✓					
28-29/11/2024	EP2417960	✓	✓	4 x NC	6 x NC	8x NC	✓	✓	✓	✓
28/11/2025	1168982	✓	✓	✓	✓	✓	✓	✓	✓	✓
15-16/01/2025	EP2500657		✓	8 x NC	6 x NC	8x NC	✓	✓	✓	✓
16/01/2025	1178931		✓	✓	✓	✓	✓	✓	✓	✓

Notes

*ASS laboratory report. Standard laboratory QAQC not applicable

Non-compliances identified in the above **Table H-2** are discussed in the following sections.

Sample Receipt Temperature

A review of the sample receipt notifications (SRN) indicated that samples arrived with a temperature range from 8.2°C to 16.2°C, below the below the required preservation temperature of 6°C by the laboratory.

All workorders acknowledged evidence of 'attempt to chill' and considering that the recorded temperatures are measured from the top of the esky when opening (which is considered to have a slightly higher temperature), these non-conformances are not considered to significantly impact the reliability of the data. In addition, sample containers were completely filled with negligible headspace and lids tightly secured.

All volatile organic compounds were not detected above the LOR during the soil investigation which combined with the lack of hydrocarbon detections in the groundwater monitoring event, outside of one sample, indicates that volatile organic compounds were unlikely to have volatised during transport to the lab.

While acid sulfate samples should be delivered to the laboratory below 6°C, to avoid acidification prior to analysis, the neutral soil pH and multiple exceedances of the DER ILs for pH change indicate that acidification of the samples was unlikely to have occurred prior to analysis.,

Finally, lab reports EP2415925 (soil) EP2417960 (water) and EP2500657 (water) indicated that ice bricks were used to chill samples, when PFAS analysis was to be undertaken. Ice bricks have the potential to contain PFAS and potentially cross contaminate samples, although it is noted that PFAS was not detected in any trip blank sample, as detailed below. A review of the data from the associated lab report indicated PFAS concentrations were either below the investigation levels (ILs) (soils) or exceeded the ILs (groundwater) to an extent that potential cross contamination would not affect the risk profile of the samples.

Holding Times

Samples were generally analysed within recommended holding times. Holding time non-compliances are detailed in **Table H-3** and summarised below.

Sampling holding time non-compliances are largely related to pH which has a notably short holding time measured in hours and is mainly required to conduct other laboratory analytical suites. pH is largely not used for data interpretation, where pH is used for data interpretation, field pH has been used instead., All other samples were delivered to the laboratory within holding time, it is unknown why the analysis wasn't commenced within the holding time. SRN's received by Senversa were often not sent until several days after the samples had been submitted, possibly a result of issues at the receiving laboratory and therefore outside of Senversa's control.

Table H-3: Holding Time Non-Compliances

Laboratory Batch	Test	Days Overdue
Soil		
EP2415957	EA002: pH 1:5 (Soils)	8
EP2415957	Nitrite as N by Discrete Analyser	8
EP2415957	pH by PC Titrator	15
EP2415957	EA015: Total Dissolved Solids dried at 180 ± 5 °C	2
EP2415957	Alkalinity by PC Titrator	1
EP2415957	Reactive Phosphorus as P by discrete analyser	7
EP2415957	Sulfide as S2-	8
EP2417725	EA002: pH 1:5 (Soils)	10
EP2417725	EA002: pH 1:5 (Soils)	7
EP2415682	EA002: pH 1:5 (Soils)	6
EP2415807	EA002: pH 1:5 (Soils)	7
EP2415807	pH by PC Titrator	14

EP2415807	EA015: Total Dissolved Solids dried at 180 ± 5 °C	3
EP2415807	Reactive Phosphorus as P by discrete analyser	9
EP2415807	Sulfide as S2-	9
EP2415810	EA002: pH 1:5 (Soils)	7
EP2415810	pH by PC Titrator	18
EP2415810	pH by PC Titrator	14
EP2415810	EA015: Total Dissolved Solids dried at 180 ± 5 °C	6
EP2415810	Alkalinity by PC Titrator	4
EP2415810	Reactive Phosphorus as P by discrete analyser	11
EP2415810	Reactive Phosphorus as P by discrete analyser	6
EP2415810	Sulfide as S2-	13
EP2415810	Sulfide as S2-	6
EP2415810	EP080/071: Total Petroleum Hydrocarbons	6
EP2415810	EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions	6
EP2415903	EA002: pH 1:5 (Soils)	5
EP2415903	EP080/071: Total Petroleum Hydrocarbons	5
EP2415903	EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions	5
EP2415925	EA002: pH 1:5 (Soils)	1
Groundwater		
EP2417960	Nitrite as N by Discrete Analyser	6
EP2417960	Nitrite as N by Discrete Analyser	5
EP2417960	Reactive Phosphorus as P by discrete analyser	2
EP2417960	Reactive Phosphorus as P by discrete analyser	1
EP2417960	Reactive Phosphorus as P by discrete analyser	2
EP2500657	pH by PC Titrator	8
EP2500657	pH by PC Titrator	7
EP2500657	Ammonia as N by Discrete Analyser	1
EP2500657	Nitrite as N by Discrete Analyser	12
EP2500657	Nitrite as N by Discrete Analyser	11
EP2500657	Total Kjeldahl Nitrogen By Discrete Analyser	8
EP2500657	Total Phosphorus as P by Discrete Analyser	7
EP2500657	Organochlorine Pesticides	1

Laboratory Duplicate Frequency

Laboratory duplicate frequency non-conformances are detailed in **Table H-4** below.

The below non-conformances are not considered to impact the quality of the data or data interpretation as additional laboratory tests (e.g. method blanks, surrogate recoveries, and laboratory control samples) were analysed over the course of the sampling program at an acceptable frequency and/or found to be compliant that laboratory data quality objectives for these CoPCs.

Table H-4: Laboratory Duplicate Frequency Non-Compliances

Laboratory Batch	Category	Value	Limit
Soil			
EP2415957	PFAS by LCMSMS	0.00%	10.00%
EP2415957	PFAS by LCMSMS	0.00%	10.00%
EP2417960	PAH/Phenols (GC/MS - SIM)	0.00%	10.00%
EP2417960	PFAS by LCMSMS	0.00%	10.00%
EP2417960	TRH - Semivolatile Fraction	2.63%	10.00%
EP2417960	PAH/Phenols (GC/MS - SIM)	0.00%	10.00%
EP2417960	PFAS by LCMSMS	0.00%	10.00%
EP2417960	TRH - Semivolatile Fraction	2.63%	10.00%
EP2415810	PFAS by LCMSMS	8.00%	10.00%
EP2415810	PFAS by LCMSMS	8.00%	10.00%
EP2415810	TRH - Semivolatile Fraction	9.68%	10.00%
EP2415810	PFAS by LCMSMS	8.00%	10.00%
EP2415810	TRH - Semivolatile Fraction	9.68%	10.00%
EP2415903	TRH - Semivolatile Fraction	0.00%	10.00%
EP2415903	TRH - Semivolatile Fraction	0.00%	10.00%
EP2415925	PFAS by LCMSMS	0.00%	10.00%
EP2415925	PFAS by LCMSMS	0.00%	10.00%
Groundwater			
EP2417960	PAH/Phenols (GC/MS - SIM)	0.00%	10.00%
EP2417960	PFAS by LCMSMS	0.00%	10.00%
EP2417960	TRH - Semivolatile Fraction	2.63%	10.00%
EP2417960	PAH/Phenols (GC/MS - SIM)	0.00%	10.00%
EP2417960	PFAS by LCMSMS	0.00%	10.00%
EP2417960	TRH - Semivolatile Fraction	2.63%	10.00%
EP2500657	Organochlorine Pesticides (Ultra-trace)	0.00%	10.00%
EP2500657	PFAS by LCMSMS	6.45%	10.00%

EP2500657	TRH - Semivolatile Fraction	5.13%	10.00%
EP2500657	Organochlorine Pesticides (Ultra-trace)	0.00%	10.00%
EP2500657	PFAS by LCMSMS	6.45%	10.00%
EP2500657	TRH - Semivolatile Fraction	5.13%	10.00%

Matrix Spike Frequency

Matrix spikes were analysed at the required frequencies, except for the following instances, as detailed in **Table H-5**.

The below non-conformances are not considered to impact the quality of the data or data interpretation as additional laboratory tests (e.g. method blanks, surrogate recoveries, and laboratory control samples) were analysed over the course of the sampling program at an acceptable frequency and/or found to be compliant that laboratory data quality objectives for these CoPCs.

Table H-5: Matrix Spike Frequency Non-Compliances

Laboratory Batch	Test	Actual Frequency	Expected Frequency
Soil			
EP2415957	PFAS by LCMSMS	0.00%	5.00%
EP2415957	Total Metals by ICP-MS - Suite A	0.00%	5.00%
EP2415682	Chloride Soluble By Discrete Analyser	4.76%	5.00%
EP2415807	Total Metals by ICP-MS - Suite A	0.00%	5.00%
EP2415810	PFAS by LCMSMS	4.00%	5.00%
EP2415810	Total Metals by ICP-MS - Suite A	0.00%	5.00%
EP2415903	Dissolved Mercury by FIMS	0.00%	5.00%
EP2415903	Dissolved Metals by ICP-MS - Suite A	0.00%	5.00%
EP2415903	TRH - Semivolatile Fraction	0.00%	5.00%
Groundwater			
EP2500657	Organochlorine Pesticides (Ultra-trace)	0.00%	5.00%
EP2500657	PFAS by LCMSMS	3.23%	5.00%
EP2500657	Total Metals by ICP-MS - Suite A	0.00%	5.00%
EP2500657	TRH - Semivolatile Fraction	2.56%	5.00%
EP2417960	PAH/Phenols (GC/MS - SIM)	0.00%	5.00%
EP2417960	PFAS by LCMSMS	0.00%	5.00%
EP2417960	Total Metals by ICP-MS - Suite A	0.00%	5.00%

EP2417960	TRH - Semivolatile Fraction	2.63%	5.00%
EP2415903	Dissolved Mercury by FIMS	0.00%	5.00%
EP2415903	Dissolved Metals by ICP-MS - Suite A	0.00%	5.00%
EP2415903	TRH - Semivolatile Fraction	0.00%	5.00%
EP2415925	PFAS by LCMSMS	0.00%	5.00%

Matrix Spike Recoveries

Matrix spike recoveries were generally within the acceptable limits, except for the following instances, as detailed in **Table H-6**.

The majority of MS recovery non-conformances were related to non-determinations of matrix spike due to elevated CoPC concentrations in the background sample. Non-determinations do not represent a true non-conformance but indicate that the laboratory matrix spike was of too small a concentration compared to the actual concentrations within the sample. Where matrix spike recoveries were below acceptable range, there may be a low bias in reported results, and high bias where results were above the acceptable range. This was considered during data assessment. 1178931 present analysis of secondary duplicates, and primary samples were used for final data assessment. Non-conformances did not affect the data interpretation as the results were generally consistent across all sampling events.

Table H-6: Matrix Spike Recovery Non-Compliances

Laboratory Batch	Compound	Recovery	Notes
Soils			
EP2417725	Zinc	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2417725	4.4`-DDT	17.5%	Recovery less than lower data quality objective
EP2417725	C29 - C36 Fraction	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2417725	>C34 - C40 Fraction	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	>C34 - C40 Fraction	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	>C34 - C40 Fraction	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	PFHxS	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	PFOS	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	Perfluorononane sulfonic acid (PFNS)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	PFHxA	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	PFOA	Not Determined	MS recovery not determined, background level ≥ 4x spike level

EP2415682	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	6:2 FTS	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415682	8:2 FTS	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415807	Nitrite + Nitrate as N	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	Zinc	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	Mercury	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	Total Phosphorus as P	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	C29 - C36 Fraction	62.7%	Recovery less than lower data quality objective
EP2415810	PFBS	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	Perfluoropentane sulfonic acid (PFPeS)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	PFHxS	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	PFOS	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	PFHxA	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	Mercury	59.5%	Recovery less than lower data quality objective
EP2415810	Nitrite + Nitrate as N	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415810	Nitrite + Nitrate as N	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415903	PFHxS	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2415903	PFOS	Not Determined	MS recovery not determined, background level ≥ 4x spike level
1178931	Chromium	73%	
1178931	Nickel	68%	
1178931	Zinc	70%	
1178931	Sodium	Q05%	
Groundwater			
EP2500657	Nitrite as N	58.6%	Recovery less than lower data quality objective
EP2500657	Nitrite + Nitrate as N	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2500657	Perfluorobutane sulfonic acid (PFBS)	Not Determined	MS recovery not determined, background level ≥ 4x spike level

EP2417960	Ammonia as N	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2417960	Nitrite + Nitrate as N	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2500657	Perfluorobutane sulfonic acid (PFBS)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2500657	Perfluorohexane sulfonic acid (PFHxS)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2500657	Perfluorooctane sulfonic acid (PFOS)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2500657	Perfluorodecane sulfonic acid (PFDS)	68.6%	Recovery less than lower data quality objective
EP2500657	Perfluoropentanoic acid (PFPeA)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2500657	Perfluorohexanoic acid (PFHxA)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2500657	Perfluoroheptanoic acid (PFHpA)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2500657	Perfluorooctanoic acid (PFOA)	Not Determined	MS recovery not determined, background level ≥ 4x spike level
EP2500657	Perfluorotridecanoic acid (PFTrDA)	58.0%	Recovery less than lower data quality objective

The majority of MS recovery non-conformances were related to non-determinations of matrix spike due to elevated CoPC concentrations in the background sample. Non-determinations do not represent a true non-conformance, but indicate that the laboratory matrix spike was of too small a concentration compared to the actual concentrations within the sample. Where matrix spike recoveries were below acceptable range, there may be a low bias in reported results, and high bias where results were above the acceptable range. This was considered during data assessment. 1178931 present analysis of secondary duplicates, and primary samples were used for final data assessment. Non-conformances did not affect the data interpretation as the results were generally consistent across all sampling events.

Limits of Reporting

All laboratory LoRs were below the adopted assessment levels.

Data Suitability

While some laboratory QC non-conformances were reported, these were not considered to significantly impact on the quality or representativeness of the data, and the remainder of the QAQC results indicated that data quality was within acceptable limits. The overall results are therefore considered representative of the environmental condition of the site at the time of investigation and are suitable for their intended purpose.

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415682	EP2415682		EP2415682	1154927		EP2415682	EP2415682		EP2415682	1154927	
		Field ID	SB020_0.0-0.1	QC101		SB020_0.0-0.1	QC201		SB009_0.0-0.1	QC102		SB009_0.0-0.1	QC202	
		Date	17/10/2024	17/10/2024		17/10/2024	17/10/2024		17/10/2024	17/10/2024		17/10/2024	17/10/2024	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
Metals														
Arsenic	mg/kg	2	6	6	0	6	5.8	3	<5	<5	0	<5	5.6	11
Cadmium	mg/kg	0.1	<1	<1	0	<1	<0.1	0	<1	<1	0	<1	<0.1	0
Chromium	mg/kg	1	41	18	**78**	41	17	**83**	9	9	0	9	10	11
Copper	mg/kg	1	<5	14	95	<5	6.2	21	<5	<5	0	<5	1.1	0
Lead	mg/kg	1	<5	50	164	<5	35	**150**	13	7	60	13	8.4	43
Mercury	mg/kg	0.02	<0.1	<0.1	0	<0.1	0.02	0	<0.1	<0.1	0	<0.1	<0.02	0
Nickel	mg/kg	1	2	10	133	2	5.2	89	3	2	40	3	3.0	0
Zinc	mg/kg	5	<5	51	**164**	<5	28	139	6	5	18	6	5.7	5
Inorganics														
Ammonia (as N)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate (as N)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite (as N)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Oxidised Nitrogen (as N)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Total Nitrogen (as N)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (as P)	mg/kg	1	-	-	-	-	-	-	-	-	-	-	-	-
Major Ions														
Calcium (filtered)	mg/kg	5	70	130	**60**	-	-	-	40	50	22	40	-	-
Chloride	mg/kg	10	20	40	67	-	-	-	<10	<10	0	<10	-	-
Magnesium (filtered)	mg/kg	5	<10	<10	0	-	-	-	<10	<10	0	<10	-	-
Potassium (filtered)	mg/kg	5	<10	20	67	-	-	-	<10	<10	0	<10	-	-
Sulfate (as SO4) (filtered)	mg/kg	10	<10	20	67	-	-	-	<10	<10	0	<10	-	-
Sodium (filtered)	mg/kg	5	20	20	0	-	-	-	<10	<10	0	<10	-	-
BTEXN														
Benzene	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (o)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Xylene	mg/kg	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene (VOC)	mg/kg	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Total BTEX	mg/kg	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Total Recoverable Hydrocarbons														
C6-C10 Fraction	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
C6-C10 Fraction minus BTEX (F1)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C16 Fraction	mg/kg	50	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C16 Fraction minus naphthalene (F2)	mg/kg	50	-	-	-	-	-	-	-	-	-	-	-	-
>C16-C34 Fraction	mg/kg	100	-	-	-	-	-	-	-	-	-	-	-	-
>C34-C40 Fraction	mg/kg	100	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C40 Fraction (Sum)	mg/kg	50	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides														
a-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
4,4'-DDE	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (cis)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Toxaphene	mg/kg	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Other Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415807	EP2415807		EP2415807	1154927		EP2415810	EP2415810		EP2415810	1154927	
		Field ID	SB025_0.0-0.1	QC103		SB025_0.0-0.1	QC203		SB034_0.0-0.1	QC104		SB034_0.0-0.1	QC204	
		Date	18/10/2024	18/10/2024		18/10/2024	17/10/2024		21/10/2024	21/10/2024		21/10/2024	17/10/2024	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
Metals														
Arsenic	mg/kg	2	6	5	18	6	5.0	18	<5	<5	0	<5	2.8	0
Cadmium	mg/kg	0.1	<1	<1	0	<1	<0.1	0	<1	<1	0	<1	<0.1	0
Chromium	mg/kg	1	15	16	6	15	14	7	6	6	0	6	6.7	11
Copper	mg/kg	1	7	7	0	7	3.7	62	<5	<5	0	<5	3.3	0
Lead	mg/kg	1	33	28	16	33	19	**54**	13	11	17	13	13	0
Mercury	mg/kg	0.02	<0.1	<0.1	0	<0.1	0.02	0	<0.1	<0.1	0	<0.1	<0.02	0
Nickel	mg/kg	1	4	4	0	4	6.0	40	<2	<2	0	<2	1.8	0
Zinc	mg/kg	5	38	29	27	38	22	53	25	29	15	25	31	21
Inorganics														
Ammonia (as N)	mg/kg	10	-	-	-	-	-	-	<20	<20	0	-	-	-
Nitrate (as N)	mg/kg	0.1	-	-	-	-	-	-	0.4	0.4	0	-	-	-
Nitrite (as N)	mg/kg	0.1	-	-	-	-	-	-	<0.1	<0.1	0	-	-	-
Total Oxidised Nitrogen (as N)	mg/kg	0.1	-	-	-	-	-	-	0.4	0.4	0	-	-	-
Total Kjeldahl Nitrogen	mg/kg	10	-	-	-	-	-	-	290	330	13	-	-	-
Total Nitrogen (as N)	mg/kg	10	-	-	-	-	-	-	290	330	13	-	-	-
Phosphorus (as P)	mg/kg	1	-	-	-	-	-	-	58	82	**34**	-	-	-
Major Ions														
Calcium (filtered)	mg/kg	5	60	50	18	60	-	-	30	30	0	30	-	-
Chloride	mg/kg	10	<10	10	0	<10	10	0	<10	<10	0	<10	<10	0
Magnesium (filtered)	mg/kg	5	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-
Potassium (filtered)	mg/kg	5	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-
Sulfate (as SO4) (filtered)	mg/kg	10	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-
Sodium (filtered)	mg/kg	5	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-
BTEXN														
Benzene	mg/kg	0.1	-	-	-	-	-	-	<0.2	<0.2	0	-	-	-
Toluene	mg/kg	0.1	-	-	-	-	-	-	<0.5	<0.5	0	-	-	-
Ethylbenzene	mg/kg	0.1	-	-	-	-	-	-	<0.5	<0.5	0	-	-	-
Xylene (m & p)	mg/kg	0.2	-	-	-	-	-	-	<0.5	<0.5	0	-	-	-
Xylene (o)	mg/kg	0.1	-	-	-	-	-	-	<0.5	<0.5	0	-	-	-
Total Xylene	mg/kg	0.3	-	-	-	-	-	-	<0.5	<0.5	0	-	-	-
Naphthalene (VOC)	mg/kg	0.5	-	-	-	-	-	-	<1	<1	0	-	-	-
Total BTEX	mg/kg	0.2	-	-	-	-	-	-	<0.2	<0.2	0	-	-	-
Total Recoverable Hydrocarbons														
C6-C10 Fraction	mg/kg	10	-	-	-	-	-	-	<10	<10	0	-	-	-
C6-C10 Fraction minus BTEX (F1)	mg/kg	10	-	-	-	-	-	-	<10	<10	0	-	-	-
>C10-C16 Fraction	mg/kg	50	-	-	-	-	-	-	<50	<50	0	-	-	-
>C10-C16 Fraction minus naphthalene (F2)	mg/kg	50	-	-	-	-	-	-	<50	<50	0	-	-	-
>C16-C34 Fraction	mg/kg	100	-	-	-	-	-	-	<100	<100	0	-	-	-
>C34-C40 Fraction	mg/kg	100	-	-	-	-	-	-	<100	<100	0	-	-	-
>C10-C40 Fraction (Sum)	mg/kg	50	-	-	-	-	-	-	<50	<50	0	-	-	-
Organochlorine Pesticides														
a-BHC	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
b-BHC	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
d-BHC	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Dieldrin	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
g-BHC (Lindane)	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Aldrin	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Aldrin + Dieldrin	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Chlordane	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.1	0
DDT	mg/kg	0.05	-	-	-	-	-	-	<0.2	<0.2	0	<0.2	<0.05	0
4,4'-DDE	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
DDD	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
DDT+DDE+DDD	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Endosulfan I	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Endosulfan II	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Endosulfan sulfate	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Endrin	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Chlordane (cis)	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	-	-
Chlordane (trans)	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	-	-
Endrin aldehyde	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Endrin ketone	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Heptachlor	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Heptachlor epoxide	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0
Methoxychlor	mg/kg	0.05	-	-	-	-	-	-	<0.2	<0.2	0	<0.2	<0.05	0
Endosulfan	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	-	-
Toxaphene	mg/kg	0.5	-	-	-	-	-	-	-	-	-	-	<0.5	-
Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-
Other Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	<0.1	-
Hexachlorobenzene	mg/kg	0.05	-	-	-	-	-	-	<0.05	<0.05	0	<0.05	<0.05	0

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415957	EP2415957		EP2415957	1154927		EP2415957	EP2415957		EP2415937	1154927	
		Field ID	SB029_0.0-0.1	QC105		SB029_0.0-0.1	QC205		SB033_0.0-0.1	QC106		SB033_0.0-0.1	QC206	
		Date	22/10/2024	22/10/2024		22/10/2024	17/10/2024		22/10/2024	22/10/2024		22/10/2024	17/10/2024	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
Metals														
Arsenic	mg/kg	2	<5	<5	0	<5	<2	0	-	-	-	<5	<2	-
Cadmium	mg/kg	0.1	<1	<1	0	<1	<0.1	0	-	-	-	<1	<0.1	-
Chromium	mg/kg	1	8	8	0	8	3.1	88	-	-	-	<2	<1	-
Copper	mg/kg	1	<5	<5	0	<5	<1	0	-	-	-	<5	<1	-
Lead	mg/kg	1	<5	<5	0	<5	1.9	0	-	-	-	<5	2.2	-
Mercury	mg/kg	0.02	<0.1	<0.1	0	<0.1	0.02	0	-	-	-	<0.1	<0.02	-
Nickel	mg/kg	1	<2	<2	0	<2	<1	0	-	-	-	<2	<1	-
Zinc	mg/kg	5	<5	<5	0	<5	<5	0	-	-	-	7	22	-
Inorganics														
Ammonia (as N)	mg/kg	10	-	-	-	<20	<10	0	-	-	-	<20	<10	-
Nitrate (as N)	mg/kg	0.1	-	-	-	0.7	<1	0	-	-	-	1.0	<1	-
Nitrite (as N)	mg/kg	0.1	-	-	-	<0.1	<1	0	-	-	-	<0.1	<1	-
Total Oxidised Nitrogen (as N)	mg/kg	0.1	-	-	-	0.7	<1	0	-	-	-	1.0	<1	-
Total Kjeldahl Nitrogen	mg/kg	10	-	-	-	380	550	**37**	-	-	-	280	270	-
Total Nitrogen (as N)	mg/kg	10	-	-	-	380	550	**37**	-	-	-	280	270	-
Phosphorus (as P)	mg/kg	1	-	-	-	72	39	**59**	-	-	-	27	9.9	-
Major Ions														
Calcium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate (as SO4) (filtered)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
BTEXN														
Benzene	mg/kg	0.1	-	-	-	<0.2	<0.1	0	-	-	-	<0.2	<0.1	-
Toluene	mg/kg	0.1	-	-	-	<0.5	<0.1	0	-	-	-	<0.5	<0.1	-
Ethylbenzene	mg/kg	0.1	-	-	-	<0.5	<0.1	0	-	-	-	<0.5	<0.1	-
Xylene (m & p)	mg/kg	0.2	-	-	-	<0.5	<0.2	0	-	-	-	<0.5	<0.2	-
Xylene (o)	mg/kg	0.1	-	-	-	<0.5	<0.1	0	-	-	-	<0.5	<0.1	-
Total Xylene	mg/kg	0.3	-	-	-	<0.5	<0.3	0	-	-	-	<0.5	<0.3	-
Naphthalene (VOC)	mg/kg	0.5	-	-	-	<1	<0.5	0	-	-	-	<1	<0.5	-
Total BTEX	mg/kg	0.2	-	-	-	<0.2	-	-	-	-	-	<0.2	-	-
Total Recoverable Hydrocarbons														
C6-C10 Fraction	mg/kg	10	-	-	-	<10	<20	0	-	-	-	<10	<20	-
C6-C10 Fraction minus BTEX (F1)	mg/kg	10	-	-	-	<10	<20	0	-	-	-	<10	<20	-
>C10-C16 Fraction	mg/kg	50	-	-	-	<50	<50	0	-	-	-	<50	<50	-
>C10-C16 Fraction minus naphthalene (F2)	mg/kg	50	-	-	-	<50	<50	0	-	-	-	<50	<50	-
>C16-C34 Fraction	mg/kg	100	-	-	-	<100	100	0	-	-	-	<100	<100	-
>C34-C40 Fraction	mg/kg	100	-	-	-	<100	140	33	-	-	-	<100	<100	-
>C10-C40 Fraction (Sum)	mg/kg	50	-	-	-	<50	240	131	-	-	-	<50	<100	-
Organochlorine Pesticides														
a-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
4,4'-DDE	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (cis)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Toxaphene	mg/kg	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Other Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415957	EP2415957		EP2415957	1154927		SB016_0.5-0.6	QC113		SB016_0.5-0.6	QC213	
		Field ID	SB035_0.0-0.1	QC107		SB035_0.0-0.1	QC207		23/10/2024	23/10/2024		23/10/2024	23/10/2024	
		Date	22/10/2024	22/10/2024		22/10/2024	17/10/2024		Normal	Field_D		Normal	Interlab_D	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	EP2415903	EP2415903	RPD	EP2415903	1155718	RPD
	Unit	EQL												
Metals														
Arsenic	mg/kg	2	<5	<5	0	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.1	<1	<1	0	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	1	<2	<2	0	-	-	-	-	-	-	-	-	-
Copper	mg/kg	1	<5	<5	0	-	-	-	-	-	-	-	-	-
Lead	mg/kg	1	25	26	4	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.02	<0.1	<0.1	0	-	-	-	-	-	-	-	-	-
Nickel	mg/kg	1	<2	<2	0	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	36	33	9	-	-	-	-	-	-	-	-	-
Inorganics														
Ammonia (as N)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate (as N)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite (as N)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Oxidised Nitrogen (as N)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Total Nitrogen (as N)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (as P)	mg/kg	1	-	-	-	-	-	-	-	-	-	-	-	-
Major Ions														
Calcium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate (as SO4) (filtered)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
BTEXN														
Benzene	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (o)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Xylene	mg/kg	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene (VOC)	mg/kg	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Total BTEX	mg/kg	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Total Recoverable Hydrocarbons														
C6-C10 Fraction	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
C6-C10 Fraction minus BTEX (F1)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C16 Fraction	mg/kg	50	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C16 Fraction minus naphthalene (F2)	mg/kg	50	-	-	-	-	-	-	-	-	-	-	-	-
>C16-C34 Fraction	mg/kg	100	-	-	-	-	-	-	-	-	-	-	-	-
>C34-C40 Fraction	mg/kg	100	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C40 Fraction (Sum)	mg/kg	50	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides														
a-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
4,4'-DDE	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (cis)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Toxaphene	mg/kg	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Other Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415903	EP2415903		EP2415903	1155718		EP2415903	EP2415903		EP2415903	1155718	
		Field ID	SB017_0.0-0.1	QC114		SB017_0.0-0.1	QC214		SB013_0.0-0.1	QC115		SB013_0.0-0.1	QC215	
		Date	23/10/2024	23/10/2024		23/10/2024	23/10/2024		23/10/2024	23/10/2024		23/10/2024	23/10/2024	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
Metals														
Arsenic	mg/kg	2	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	1	-	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	1	-	-	-	-	-	-	-	-	-	-	-	-
Lead	mg/kg	1	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.02	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	mg/kg	1	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Inorganics														
Ammonia (as N)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate (as N)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite (as N)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Oxidised Nitrogen (as N)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Total Nitrogen (as N)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (as P)	mg/kg	1	-	-	-	-	-	-	-	-	-	-	-	-
Major Ions														
Calcium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate (as SO4) (filtered)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (filtered)	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	-
BTEXN														
Benzene	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (o)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Xylene	mg/kg	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene (VOC)	mg/kg	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Total BTEX	mg/kg	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Total Recoverable Hydrocarbons														
C6-C10 Fraction	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
C6-C10 Fraction minus BTEX (F1)	mg/kg	10	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C16 Fraction	mg/kg	50	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C16 Fraction minus naphthalene (F2)	mg/kg	50	-	-	-	-	-	-	-	-	-	-	-	-
>C16-C34 Fraction	mg/kg	100	-	-	-	-	-	-	-	-	-	-	-	-
>C34-C40 Fraction	mg/kg	100	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C40 Fraction (Sum)	mg/kg	50	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides														
a-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
4,4'-DDE	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (cis)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (trans)	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Toxaphene	mg/kg	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Other Organochlorine Pesticides (EPAVic)	mg/kg	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.05	-	-	-	-	-	-	-	-	-	-	-	-

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415682	EP2415682		EP2415682	1154927		EP2415682	EP2415682		EP2415682	1154927	
		Field ID	SB020_0.0-0.1	QC101		SB020_0.0-0.1	QC201		SB009_0.0-0.1	QC102		SB009_0.0-0.1	QC202	
		Date	17/10/2024	17/10/2024		17/10/2024	17/10/2024		17/10/2024	17/10/2024		17/10/2024	17/10/2024	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
(n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoroalkane Carboxylic Acids														
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	0	-	-	-	<0.001	<0.001	0	<0.001	<0.005	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroalkane Sulfonic Acids														
Perfluorononane sulfonate (PFNS)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002	<0.0002	0.0006	100	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
Sum of PFHxS and PFOS	mg/kg	0.0002	<0.0002	0.0006	100	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroalkyl Sulfonamides														
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002	<0.0002	<0.0002	0	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 1000 (1 - 10 x EQL); 50 (10 - 20 x EQL); 30 (> 20 x EQL))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415807	EP2415807		EP2415807	1154927		EP2415810	EP2415810		EP2415810	1154927	
		Field ID	SB025_0.0-0.1	QC103		SB025_0.0-0.1	QC203		SB034_0.0-0.1	QC104		SB034_0.0-0.1	QC204	
		Date	18/10/2024	18/10/2024		18/10/2024	17/10/2024		21/10/2024	21/10/2024		21/10/2024	17/10/2024	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
(n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoroalkane Carboxylic Acids														
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroalkane Sulfonic Acids														
Perfluorononane sulfonate (PFNS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002	0.0008	0.0009	12	0.0008	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Sum of PFHxS and PFOS	mg/kg	0.0002	0.0008	0.0009	12	0.0008	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroalkyl Sulfonamides														
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL mult**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories**

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415957	EP2415957		EP2415957	1154927		EP2415957	EP2415957		EP2415937	1154927	
		Field ID	SB029_0.0-0.1	QC105		SB029_0.0-0.1	QC205		SB033_0.0-0.1	QC106		SB033_0.0-0.1	QC206	
		Date	22/10/2024	22/10/2024		22/10/2024	17/10/2024		22/10/2024	22/10/2024		22/10/2024	17/10/2024	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
(n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	-
Perfluoroalkane Carboxylic Acids														
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluoroalkane Sulfonic Acids														
Perfluorononane sulfonate (PFNS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	-
Sum of PFHxS and PFOS	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-
Perfluoroalkyl Sulfonamides														
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	-
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	-

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL mult**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories**

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415957	EP2415957		EP2415957	1154927		SB016_0.5-0.6	QC113		SB016_0.5-0.6	QC213	
		Field ID	SB035_0.0-0.1	QC107		SB035_0.0-0.1	QC207		23/10/2024	23/10/2024		23/10/2024	23/10/2024	
		Date	22/10/2024	22/10/2024		22/10/2024	17/10/2024		Normal	Field_D		Normal	Interlab_D	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	EP2415903	EP2415903	RPD	EP2415903	1155718	RPD
	Unit	EQL												
(n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.01	-	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoroalkane Carboxylic Acids														
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.005	-	<0.001	<0.001	0	<0.001	<0.005	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroalkane Sulfonic Acids														
Perfluorononane sulfonate (PFNS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
Sum of PFHxS and PFOS	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroalkyl Sulfonamides														
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	-	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	-	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	-	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	-	<0.0002	<0.0002	0	<0.0002	<0.005	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL mult**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories**

Table 1: Field RPD Results - Soil Investigation
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415903	EP2415903		EP2415903	1155718		EP2415903	EP2415903		EP2415903	1155718	
		Field ID	SB017_0.0-0.1	QC114		SB017_0.0-0.1	QC214		SB013_0.0-0.1	QC115		SB013_0.0-0.1	QC215	
		Date	23/10/2024	23/10/2024		23/10/2024	23/10/2024		23/10/2024	23/10/2024		23/10/2024	23/10/2024	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
(n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoroalkane Carboxylic Acids														
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroalkane Sulfonic Acids														
Perfluorononane sulfonate (PFNS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Sum of PFHxS and PFOS	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroalkyl Sulfonamides														
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL mult**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories**

Table 2: Field RPD Results - GME
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2417960	EP2417960		EP2417960	1168982		EP2500657	EP2500657		EP2500657	1178931	
		Field ID	GHB03	QC117		GHB03	QC217		GHB04	QC118		GHB04	QC218	
		Location Code	GBH03	GBH03		GBH03	GBH03		GBH04	GBH04		GBH04	GBH04	
		Date	28/11/2024	28/11/2024		28/11/2024	28/11/2024		16/01/2025	16/01/2025		16/01/2025	16/01/2025	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
Physical Parameters														
Electrical Conductivity	µS/cm	1	-	-	-	-	-	-	1,530	1,520	1	1,530	1,500	2
Total Dissolved Solids	mg/L	5	-	-	-	-	-	-	939	932	1	939	880	6
Total Suspended Solids	mg/L	5	-	-	-	-	-	-	-	-	-	-	75	-
pH (Lab)	pH Units	0.01	-	-	-	-	-	-	7.80	7.72	1	7.80	7.7	1
Metals														
Aluminium	mg/L	0.01	2.57	0.68	**116**	2.57	2.5	3	1.61	0.96	**51**	1.61	0.79	**68**
Aluminium (filtered)	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.05	0	<0.01	<0.01	0	<0.01	<0.05	0
Arsenic (filtered)	mg/L	0.001	0.001	0.001	0	-	-	-	0.003	0.004	29	-	-	-
Cadmium (filtered)	mg/L	0.0001	<0.0001	<0.0001	0	-	-	-	<0.0001	<0.0001	0	-	-	-
Chromium (filtered)	mg/L	0.001	<0.001	<0.001	0	-	-	-	<0.001	<0.001	0	-	-	-
Cobalt (filtered)	mg/L	0.001	<0.001	<0.001	0	-	-	-	0.003	0.003	0	-	-	-
Copper (filtered)	mg/L	0.001	<0.001	<0.001	0	-	-	-	<0.001	<0.001	0	-	-	-
Iron	mg/L	0.01	3.81	0.83	**128**	3.81	3.4	11	1.78	1.08	**49**	1.78	0.79	**77**
Iron (filtered)	mg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	0.03	0
Lead (filtered)	mg/L	0.001	<0.001	<0.001	0	-	-	-	<0.001	<0.001	0	-	-	-
Manganese (filtered)	mg/L	0.001	<0.001	<0.001	0	-	-	-	0.538	0.534	1	-	-	-
Mercury (filtered)	mg/L	0.0001	<0.0001	<0.0001	0	-	-	-	<0.0001	<0.0001	0	-	-	-
Molybdenum (filtered)	mg/L	0.001	0.005	0.005	0	0.005	0.007	33	0.005	0.005	0	0.005	0.006	18
Nickel (filtered)	mg/L	0.001	<0.001	<0.001	0	-	-	-	0.004	0.004	0	-	-	-
Selenium (filtered)	mg/L	0.001	<0.01	<0.01	0	-	-	-	<0.01	<0.01	0	-	-	-
Zinc (filtered)	mg/L	0.005	<0.005	<0.005	0	-	-	-	<0.005	<0.005	0	-	-	-
Inorganics														
Ammonia (as N)	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.02	0	6.41	7.14	11	6.41	7.2	12
Nitrate (as N)	mg/L	0.01	2.60	2.62	1	2.60	2.8	7	-	-	-	-	-	-
Nitrite (as N)	mg/L	0.01	<0.01	<0.01	0	-	-	-	-	-	-	-	-	-
Total Oxidised Nitrogen (as N)	mg/L	0.01	2.60	2.62	1	2.60	2.8	7	0.21	0.22	5	0.21	0.28	29
Total Kjeldahl Nitrogen	mg/L	0.1	0.8	0.6	29	0.8	<0.2	120	6.9	6.9	0	6.9	7.2	4
Total Nitrogen (as N)	mg/L	0.1	3.4	3.2	6	3.4	2.8	19	7.1	7.1	0	7.1	7.5	5
Reactive Phosphorus (as P)	µg/L	10	30	30	0	-	-	-	<10	<10	0	-	-	-
Phosphorus (as P)	mg/L	0.01	0.16	0.13	21	0.16	<0.01	**176**	0.06	0.08	29	0.06	0.05	18
Major Ions														
Calcium (filtered)	mg/L	0.5	96	95	1	96	150	22	104	104	0	104	100	2
Chloride (filtered)	mg/L	1	-	-	-	-		-	-	-	-	-		-
Magnesium (filtered)	mg/L	0.5	10	10	0	10	12	9	24	25	4	24	23	2
Potassium (filtered)	mg/L	0.5	4	4	0	4	5.0	11	22	22	0	22	24	4
Sulfate (as SO4) (filtered)	mg/L	1	44	43	2	44	150	**109**	191	191	0	191	190	1
Sodium (filtered)	mg/L	0.5	100	102	2	100	110	5	181	174	4	181	180	1
Alkalinity														
Bicarbonate Alkalinity (as CaCO3)	mg/L	1	312	305	2	312	340	9	410	407	1	410	470	14
Carbonate Alkalinity (as CaCO3)	mg/L	1	<1	<1	0	<1	<5	0	<1	<1	0	<1	<5	0
Hydroxide Alkalinity (as CaCO3)	mg/L	1	<1	<1	0	<1	<5	0	<1	<1	0	<1	<5	0
Total Alkalinity (as CaCO3)	mg/L	1	312	305	2	312	340	9	410	407	1	410	470	14
Acidity (as CaCO3)	mg/L	1	18	15	18	18	12	40	37	37	0	37	17	**74**
BTEX														
Benzene	µg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Toluene	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
Ethylbenzene	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
Xylene (m & p)	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
Total Xylene	µg/L	2	<2	<2	0	<2	<3	0	<2	<2	0	<2	<3	0
Naphthalene (VOC)	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Total BTEX	µg/L	1	<1	<1	0	-	-	-	<1	<1	0	-	-	-
Total Recoverable Hydrocarbons														
C6-C10 Fraction	µg/L	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
C6-C10 Fraction minus BTEX (F1)	µg/L	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
>C10-C16 Fraction	µg/L	20	<100	<100	0	<100	<20	0	<100	<100	0	<100	<20	0
>C10-C16 Fraction minus naphthalene (F2)	µg/L	20	<100	<100	0	<100	<20	0	<100	<100	0	<100	<20	0
>C16-C34 Fraction	µg/L	50	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
>C34-C40 Fraction	µg/L	50	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
>C10-C40 Fraction (Sum)	µg/L	50	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
Organochlorine Pesticides														
a-BHC	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
b-BHC	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
d-BHC	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
Dieldrin	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
g-BHC (Lindane)	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
Aldrin	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
Aldrin + Dieldrin	µg/L	0.01	<0.010	<0.010	0	<0.010	-	-	<0.010	<0.010	0	<0.010	-	-
Chlordane	µg/L	0.002	<0.010	<0.010	0	<0.010	<0.002	0	<0.010	<0.010	0	<0.010	<0.002	0
DDT	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
4,4'-DDE	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
DDD	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
DDT+DDE+DDD	µg/L	0.01	<0.010	<0.010	0	<0.010	-	-	<0.010	<0.010	0	<0.010	-	-
Endosulfan I	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
Endosulfan II	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
Endosulfan sulfate	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
Endrin	µg/L	0.01	<0.010	<0.010	0	<0.010	<0.01	0	<0.010	<0.010	0	<0.010	<0.01	0
Chlordane (cis)	µg/L	0.01	<0.010	<0.010	0	<0.010	-	-	<0.010	<0.010	0	<0.010	-	-
Chlordane (trans)	µg/L	0.01	<0.010	<0.010	0	<0.010	-	-	<0.010	<0.010	0	<0.010	-	-
Endrin aldehyde	µg/L	0.01	<0.010	<0.010	0	<0.010	-	-	<0.010	<0.010	0	<0.010	-	-
Endrin ketone	µg/L	0.01	<0.010	<0.010	0	<0.010	-	-	<0.010	<0.010	0	<0.010	-	-
Heptachlor	µg/L	0.001	<0.005	<0.005	0	<0.005	<0.001	0	<0.005	<0.005	0	<0.005	<0.001	0
Heptachlor epoxide	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
Methoxychlor	µg/L	0.01	<0.010	<0.010	0	<0.010	<0.02	0	<0.010	<0.010	0	<0.010	<0.02	0
2,4-DDT	µg/L	0.001	-	-	-	-	<0.001	-	-	-	-	-	<0.001	-
Endosulfan	µg/L	0.01	<0.010	<0.010	0	<0.010	-	-	<0.010	<0.010	0	<0.010	-	-
Oxychlordane	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0
Hexachlorobenzene	µg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	<0.001	0

Table 2: Field RPD Results - GME
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2417960	EP2417960		EP2417960	1168982		EP2500657	EP2500657		EP2500657	1178931	
		Field ID	GHB03	QC117		GHB03	QC217		GBH04	QC118		GBH04	QC218	
		Location Code	GBH03	GBH03		GBH03	GBH03		GBH04	GBH04		GBH04	GBH04	
		Date	28/11/2024	28/11/2024		28/11/2024	28/11/2024		16/01/2025	16/01/2025		16/01/2025	16/01/2025	
		Sample Type	Normal	Field_D	RPD	Normal	Interlab_D	RPD	Normal	Field_D	RPD	Normal	Interlab_D	RPD
	Unit	EQL												
(n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0	0.010	0.011	10	0.010	0.005	67
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluoroalkane Carboxylic Acids														
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	0.0159	0.0152	5	0.0159	0.026	**48**
Perfluorododecanoic acid (PFDoDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	<0.0005	<0.0005	0	<0.0005	<0.001	0
Perfluorononanoic acid (PFNA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	0.0018	0.0016	12	0.0018	0.002	11
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	0.0195	0.0185	5	0.0195	<0.001	**180**
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	<0.0020	<0.0005	0	<0.0020	<0.001	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	0.0169	0.0158	7	0.0169	0.025	**39**
Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.0020	<0.0020	0	<0.0020	<0.005	0	0.0276	0.0257	7	0.0276	0.041	39
Perfluorodecanoic acid (PFDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	<0.0005	<0.0005	0	<0.0005	<0.001	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	<0.0008	<0.0005	0	<0.0008	<0.001	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	<0.0008	<0.0005	0	<0.0008	<0.001	0
Perfluorooctanoic acid (PFOA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	0.0606	0.0534	13	0.0606	0.079	26
Perfluoroalkane Sulfonic Acids														
Perfluorononane sulfonate (PFNS)	µg/L	0.001	-	-	-	-	<0.001	-	-	-	-	-	<0.001	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.0001	0.0005	0.0005	0	0.0005	0.0004	22	0.0465	0.0422	10	0.0465	0.045	3
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.0005	0.0009	0.0009	0	0.0009	<0.001	0	0.0099	0.0088	12	0.0099	0.012	19
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.0005	0.0018	0.0016	12	0.0018	<0.001	57	0.148	0.145	2	0.148	0.18	20
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	0.0027	0.0022	20	0.0027	0.002	30
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.001	0	<0.0008	<0.0005	0	<0.0008	<0.001	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.0005	0.0015	0.0015	0	0.0015	<0.001	40	0.0140	0.0146	4	0.0140	0.015	7
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.001	<0.0020	<0.0020	0	<0.0020	<0.001	0	0.0027	0.0032	17	0.0027	0.007	89
Perfluoroalkyl Sulfonamides														
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.001	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 1000 (1 - 10 x EQL); 50 (10 - 20 x EQL); 30 (> 20 x EQL))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

Table 3: Rinse and Trip Blanks
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415810	EP2415807	EP2415810	EP2415957	EP2415903	EP2415925	EP2415810	EP2415807	EP2415810	EP2415957	EP2415903	EP2415925
		Field ID	QC301	QC302	QC303	QC304	QC305	QC306	QC501	QC502	QC503	QC504	QC505	QC506
		Date	17/10/2024	18/10/2024	21/10/2024	22/10/2024	23/10/2024	24/10/2024	17/10/2024	18/10/2024	21/10/2024	22/10/2024	23/10/2024	24/10/2024
		Sample Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B
	Unit	EQL												
Physical Parameters														
Electrical Conductivity	µS/cm	1	<1	<1	<1	2	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	10	<10	<10	<10	<10	-	-	-	-	-	-	-	-
pH (Lab)	pH Units	0.01	5.63	5.38	5.74	5.51	-	-	-	-	-	-	-	-
Metals														
Aluminium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
Aluminium (filtered)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
Arsenic (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-
Cadmium (filtered)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-
Chromium (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-
Cobalt (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-
Copper (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-
Iron	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-
Iron (filtered)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-
Lead (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-
Manganese (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-
Mercury (filtered)	mg/L	0.0001	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-	-	-	-
Nickel (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-
Selenium (filtered)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
Zinc (filtered)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-
Inorganics														
Ammonia (as N)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
Total Oxidised Nitrogen (as N)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
Total Nitrogen (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
Reactive Phosphorus (as P)	µg/L	10	<10	<10	<10	<10	-	-	-	-	-	-	-	-
Phosphorus (as P)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
Sulfide (as S)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
Major Ions														
Calcium (filtered)	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Chloride	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Magnesium (filtered)	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Potassium (filtered)	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Sulfate (as SO4) (filtered)	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Sodium (filtered)	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Anions Total	meq/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
Cations Total	meq/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
Ionic Balance	%	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
Alkalinity														
Bicarbonate Alkalinity (as CaCO3)	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Carbonate Alkalinity (as CaCO3)	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Hydroxide Alkalinity (as CaCO3)	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Total Alkalinity (as CaCO3)	mg/L	1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-
Acidity (as CaCO3)	mg/L	1	1	1	<1	2	-	-	-	-	-	-	-	-
BTEX														
Benzene	µg/L	1	<1	-	<1	-	<1	-	<1	-	<1	-	-	-
Toluene	µg/L	2	<2	-	<2	-	<2	-	<2	-	<2	-	-	-
Ethylbenzene	µg/L	2	<2	-	<2	-	<2	-	<2	-	<2	-	-	-
Xylene (m & p)	µg/L	2	<2	-	<2	-	<2	-	<2	-	<2	-	-	-
Xylene (o)	µg/L	2	<2	-	<2	-	<2	-	<2	-	<2	-	-	-
Total Xylene	µg/L	2	<2	-	<2	-	<2	-	<2	-	<2	-	-	-
Naphthalene (VOC)	µg/L	5	<5	-	<5	-	<5	-	<5	-	<5	-	-	-
Total BTEX	µg/L	1	<1	-	<1	-	<1	-	<1	-	<1	-	-	-
Total Petroleum Hydrocarbons														
C6-C9 Fraction	µg/L	20	<20	-	<20	-	<20	-	<20	-	<20	-	-	-
C10-C14 Fraction	µg/L	50	<50	-	<50	-	<50	-	-	-	-	-	-	-
C15-C28 Fraction	µg/L	100	<100	-	<100	-	<100	-	-	-	-	-	-	-
C29-C36 Fraction	µg/L	50	<50	-	<50	-	<50	-	-	-	-	-	-	-
C10-C36 Fraction (Sum)	µg/L	50	<50	-	<50	-	<50	-	-	-	-	-	-	-
Total Recoverable Hydrocarbons														
C6-C10 Fraction	µg/L	20	<20	-	<20	-	<20	-	<20	-	<20	-	-	-
C6-C10 Fraction minus BTEX (F1)	µg/L	20	<20	-	<20	-	<20	-	<20	-	<20	-	-	-
>C10-C16 Fraction	µg/L	100	<100	-	<100	-	<100	-	-	-	-	-	-	-
>C10-C16 Fraction minus naphthalene (F2)	µg/L	100	<100	-	<100	-	<100	-	-	-	-	-	-	-
>C16-C34 Fraction	µg/L	100	<100	-	<100	-	<100	-	-	-	-	-	-	-
>C34-C40 Fraction	µg/L	100	<100	-	<100	-	<100	-	-	-	-	-	-	-
>C10-C40 Fraction (Sum)	µg/L	100	<100	-	<100	-	<100	-	-	-	-	-	-	-

Table 3: Rinse and Trip Blanks
Detailed Site Investigation
Anketell Road
Main Roads Western Australia
P21560

		Lab Report No.	EP2415810	EP2415807	EP2415810	EP2415957	EP2415903	EP2415925	EP2415810	EP2415807	EP2415810	EP2415957	EP2415903	EP2415925
		Field ID	QC301	QC302	QC303	QC304	QC305	QC306	QC501	QC502	QC503	QC504	QC505	QC506
		Date	17/10/2024	18/10/2024	21/10/2024	22/10/2024	23/10/2024	24/10/2024	17/10/2024	18/10/2024	21/10/2024	22/10/2024	23/10/2024	24/10/2024
		Sample Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B
	Unit	EQL												
Physical Parameters														
(n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids														
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroalkane Sulfonic Acids														
Perfluorononane sulfonate (PFNS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroalkyl Sulfonamides														
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS														
Sum of PFAS	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Appendix G: Groundwater Field Sheets

Monitoring Round: P21560_28 Nov 2024 _1

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH08		
Arrival Date/Time	28/11/2024 08:27AM	**Departure Date/Time**	28/11/2024 09:47AM
Executed By	Indianna Daniels		
Weather	-		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:01 AM

Groundwater Data

Well	-	**Date/Time**	28/11/2024 08:27AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	13.367	**Well Depth (mbTOC)**	18
Product Depth (mbTOC)	0		
Comments & Product Description	No Product		
Equipment ID	-		
Sediment Thickness (m)	0		
Depth to Water with Pump (m)	13.4		

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Well	GBH08	**Date/Time**	28/11/2024 09:05AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	13.535	**Well Depth (mbTOC)**	17.92
Product Depth (mbTOC)	0		
Comments & Product Description	No product		
Equipment ID	-		
Sediment Thickness (m)	0		
Depth to Water with Pump (m)	13.4		

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	28/11/2024 09:06AM
Well	-
Matrix Type	Water
Equipment ID	
Sample Comments	-
Field ID (Primary)	
Purge Method	
Sample Method	
Waste Disposal	

Purge Observations (purge start)

Purge Colour (Description)	
Purge Odour (Description)	
Purge Sheen (Description)	
Purge Turbidity (Description)	

Sample Observations (purge end)

Sample Colour (Description)	
Sample Odour (Description)	
Sample Sheen (Description)	
Sample Turbidity (Description)	

QA Samples

QA Sample ID (1)	
QA Sample ID (2)	
QA Sample ID (3)	
QA Sample ID (4)	

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	
Reaction with Preservatives	No
Recharge-ability	
Water Depth at end of Sampling (m)	

Field Chemistry

Sampled Date/Time	28/11/2024 08:56AM
Well	GBH08
Matrix Type	Water
Equipment ID	-
Sample Comments	Pump start 8:25. Sine bubbles in line
Field ID (Primary)	GBH08

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	brown
Purge Odour (Description)	sulphurous odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Moderately turbid

Sample Observations (purge end)

Sample Colour (Description)	brown
Sample Odour (Description)	sulphurous odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Moderately turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	13.36

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
08:30AM		13.405	0.3	365.1	5.84	-122.9	0.95	22.5	1.5
08:33AM		13.41	0.3	3614	5.81	-115.9	0.81	22.4	2.4
08:36AM		13.41	0.3	339.9	5.81	-104	0.9	22.4	3.3
08:39AM		13.41	0.3	326	5.81	-93.9	0.7	22.5	4.2
08:42AM		13.415	0.3	313.5	5.8	-86.3	0.64	22.5	5.1
08:45AM		13.41	0.3	308.9	5.8	-82	0.67	22.5	6
08:49AM		13.415	0.3	297	5.79	-75.9	0.61	22.5	6.9
08:52AM		13.41	0.3	293.5	5.79	-73	0.63	22.5	7.8
08:55AM	13.4	13.41	0.3	290.1	5.79	-71	0.65	22.5	8.7
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_28 Nov 2024 _1

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH07		
Arrival Date/Time	28/11/2024 09:53AM	**Departure Date/Time**	29/11/2024 08:01AM
Executed By	Indianna Daniels		
Weather	-		
Comments	Potentially blocked at 12:65, unblocked to 13. 29/11 depth is the 15.2		

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Poor

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:08 AM

Groundwater Data

Well	GBH07	**Date/Time**	28/11/2024 10:00AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	11.956	**Well Depth (mbTOC)**	13.01
Product Depth (mbTOC)	0		
Comments & Product Description	No product		
Equipment ID	-		
Sediment Thickness (m)	0		
Depth to Water with Pump (m)	11.915		

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Well	GBH07	**Date/Time**	29/11/2024 07:17AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	11.92	**Well Depth (mbTOC)**	15.23
Product Depth (mbTOC)	0		
Comments & Product Description	No product		
Equipment ID	-		
Sediment Thickness (m)	0		
Depth to Water with Pump (m)	11.913		

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	29/11/2024 07:49AM
Well	GBH07
Matrix Type	Water
Equipment ID	-
Sample Comments	Pump start 7:26. Lab QC
Field ID (Primary)	GBH07

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	light brown
Purge Odour (Description)	sulphurous odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Moderately turbid

Sample Observations (purge end)

Sample Colour (Description)	light brown
Sample Odour (Description)	sulphurous odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Moderately turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Good >0.4L/min
Water Depth at end of Sampling (m)	11.92

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
07:30AM	13.5	11.98	0.3	486	6.35	-22.6	0.59	22.4	1.5
07:33AM		11.99	0.3	465	6.33	-10.1	0.95	22.3	2.4
07:36AM		11.98	0.3	454	6.31	1.7	1.47	22.3	3.3
07:39AM		11.98	0.3	450	6.29	5.4	1.7	22.3	4.2
07:45AM		11.98	0.3	449.5	6.25	12.3	1.67	22.3	5.1
07:47AM		11.98	0.3	449.5	6.24	13.5	1.67	22.3	6
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Sampled Date/Time	28/11/2024 10:22AM
Well	GBH07
Matrix Type	Water
Equipment ID	-
Sample Comments	Pump start 10:20. No water after 5 min, pulled up pump to try unblock. Not purged/ sampled
Field ID (Primary)	GVH07
Purge Method	
Sample Method	
Waste Disposal	

Purge Observations (purge start)

Purge Colour (Description)	
Purge Odour (Description)	
Purge Sheen (Description)	
Purge Turbidity (Description)	

Sample Observations (purge end)

Sample Colour (Description)	
Sample Odour (Description)	
Sample Sheen (Description)	
Sample Turbidity (Description)	

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	
Reaction with Preservatives	No
Recharge-ability	
Water Depth at end of Sampling (m)	

Field Chemistry

Monitoring Round: P21560_28 Nov 2024 _1

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH06		
Arrival Date/Time	28/11/2024 11:04AM	**Departure Date/Time**	28/11/2024 11:30AM
Executed By	Indianna Daniels		
Weather	-		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Poor

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:11 AM

Groundwater Data

Well	-	**Date/Time**	28/11/2024 11:20AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	10.447	**Well Depth (mbTOC)**	15.24
Product Depth (mbTOC)	0		
Comments & Product Description	Pump wont fit due to construction of well		
Equipment ID	-		
Sediment Thickness (m)	0		
Depth to Water with Pump (m)	0		

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Monitoring Round: P21560_28 Nov 2024 _1

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH05		
Arrival Date/Time	28/11/2024 11:37AM	**Departure Date/Time**	28/11/2024 12:21PM
Executed By	Indianna Daniels		
Weather	-		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	None
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:11 AM

Groundwater Data

Well	-	**Date/Time**	28/11/2024 11:42AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	4.827	**Well Depth (mbTOC)**	8.973
Product Depth (mbTOC)	0		
Comments & Product Description	No product		
Equipment ID	-		
Sediment Thickness (m)			
Depth to Water with Pump (m)	4.842		

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	28/11/2024 12:21PM
Well	GBH05
Matrix Type	Water
Equipment ID	-
Sample Comments	Pump start 11:52
Field ID (Primary)	GBH05

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Non-turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Non-turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	
Reaction with Preservatives	No
Recharge-ability	Good >0.4L/min
Water Depth at end of Sampling (m)	4.825

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
11:56AM	7.5	4.84	0.3	356	5.58	55.9	0.51	24.1	1.5
11:59AM	7.5	4.84	0.3	349	5.56	71	0.41	24	2.4
12:02PM	7.5	4.84	0.3	337.5	5.59	71.9	0.32	24	3.3
12:05PM	7.5	4.85	0.3	337.2	5.6	66.4	0.28	23.9	4.2
12:08PM	7.5	4.85	0.3	336	5.61	59.6	0.26	24	5.1
12:11PM	7.5	4.85	0.3	337	5.61	57	0.25	23.9	6
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_28 Nov 2024 _1

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH04		
Arrival Date/Time	28/11/2024 12:47PM	**Departure Date/Time**	28/11/2024 01:00PM
Executed By	Indianna Daniels		
Weather	-		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Needs Replacing

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:13 AM

Groundwater Data

Well	-	**Date/Time**	28/11/2024 12:47PM
Measurement Method	Dip	**Dry**	Yes
Water Depth (mbTOC)		**Well Depth (mbTOC)**	6.32
Comments & Product Description	Blocked at 6.32		

Equipment ID	-
Sediment Thickness (m)	0
Depth to Water with Pump (m)	0

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Monitoring Round: P21560_28 Nov 2024 _1

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH03		
Arrival Date/Time	28/11/2024 01:41PM	**Departure Date/Time**	28/11/2024 02:51PM
Executed By	Indianna Daniels		
Weather	-		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:14 AM

Groundwater Data

Well	-	**Date/Time**	28/11/2024 01:41PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	9.969	**Well Depth (mbTOC)**	30.45
Product Depth (mbTOC)	0		
Comments & Product Description	PVC cap jammed tight		
Equipment ID	-		
Sediment Thickness (m)	0		
Depth to Water with Pump (m)	9.969		

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	28/11/2024 02:44PM
Well	GBH03
Matrix Type	Water
Equipment ID	-
Sample Comments	Pump start 14:20
Field ID (Primary)	GBH03

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Slightly turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	QC117
QA Sample ID (2)	QC217
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	
Reaction with Preservatives	No
Recharge-ability	Good >0.4L/min
Water Depth at end of Sampling (m)	9.98

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
02:27PM	27.5	9.98	0.3	917	7.05	32.5	1.07	23.1	1.5
02:30PM	27.5	9.98	0.3	925	7.06	23.9	1.1	22.9	2.4
02:33PM	27.5	9.98	0.3	938	7.03	21.1	0.8	22.6	3.3
02:37PM	27.5	9.98	0.3	944	7.01	22.6	0.84	22.5	4.2
02:40PM	27.5	9.98	0.3	945	7.01	23.6	0.88	22.6	5.1
02:44PM	27.5	9.98	0.3	946	7.01	22.8	0.86	22.4	6
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_28 Nov 2024 _1

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH01		
Arrival Date/Time	29/11/2024 08:30AM	**Departure Date/Time**	29/11/2024 09:28AM
Executed By	Indianna Daniels		
Weather	-		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:16 AM

Groundwater Data

Well	-	**Date/Time**	29/11/2024 08:40AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	16.497	**Well Depth (mbTOC)**	30.16
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	29/11/2024 09:17AM
Well	GBH01
Matrix Type	Water
Equipment ID	-
Sample Comments	Pump start 9:00 Lab QC 2 x extra orange glass, 4 x extra pfas
Field ID (Primary)	GBH01

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Non-turbid

Sample Observations (purge end)

Sample Colour (Description)	
Sample Odour (Description)	
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Non-turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Good >0.4L/min
Water Depth at end of Sampling (m)	16.49

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
09:05AM	27.3	16.47	0.3	1047	7.07	80.3	0.99	22.2	1.5
09:09AM	27.3	16.47	0.3	1050	7.08	65.4	1.5	22.1	2.4
09:11AM	27.3	16.47	0.3	1045	7.08	64.6	1.52	22.4	3.3
09:14AM	27.3	16.47	0.3	1048	7.09	61	1.64	22.1	4.2
09:17AM	27.3	11.47	0.3	1052	7.09	59.7	1.6	22.1	5.1
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_28 Nov 2024 _1

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	MW01		
Arrival Date/Time	29/11/2024 10:03AM	**Departure Date/Time**	29/11/2024 10:45AM
Executed By	Indianna Daniels		
Weather	-		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	New

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:17 AM

Groundwater Data

Well	-	**Date/Time**	29/11/2024 10:03AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	10.486	**Well Depth (mbTOC)**	12.388
Product Depth (mbTOC)	0		
Comments & Product Description	No Product		

Equipment ID	-
Sediment Thickness (m)	0
Depth to Water with Pump (m)	10.488

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	29/11/2024 10:35AM
Well	MW01
Matrix Type	Water
Equipment ID	-
Sample Comments	Pump start 10:15
Field ID (Primary)	MW01

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Non-turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Non-turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Good >0.4L/min
Water Depth at end of Sampling (m)	10.495

Field Chemistry

Time	Pump Inlet Depth m bTOC	Standing Water Level m bTOC	Purge rate (Field) L/min	EC (Field) uS/cm	pH (Field) pH Units	Redox (Field) mV	Dissolved Oxygen (Field) mg/L	Temp (Field) ° C	Purge Volume L
10:22AM	12	10.49	0.3	947	7.3	76.6	2.09	22.6	1.5
10:25AM	12	10.49	0.3	982	7.29	69.8	1.75	22.5	2.4
10:28AM	12	10.49	0.3	1023	7.27	62.4	1.59	22.4	3.3
10:31AM	12	10.49	0.3	1041	7.26	58.8	1.73	22.4	4.2
10:34AM	12	10.49	0.3	1042	7.26	55.7	1.64	22.4	5.1
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_28 Nov 2024 _1

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	MW02		
Arrival Date/Time	29/11/2024 11:01AM	**Departure Date/Time**	29/11/2024 12:25PM
Executed By	Indianna Daniels		
Weather	-		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	New

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:19 AM

Groundwater Data

Well	-	**Date/Time**	29/11/2024 11:01AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	21.162	**Well Depth (mbTOC)**	23.5
Product Depth (mbTOC)	0		
Comments & Product Description	No product		

Equipment ID	-
Sediment Thickness (m)	0
Depth to Water with Pump (m)	21.162

gauging

Well Head PID (PPM)	0
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	29/11/2024 11:43AM
Well	MW02
Matrix Type	Water
Equipment ID	-
Sample Comments	Pump start 11:20
Field ID (Primary)	MW02

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Slightly turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Good >0.4L/min
Water Depth at end of Sampling (m)	21.17

Field Chemistry

	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
Time	**m bTOC**	**m bTOC**	**L/min**	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**	**L**
11:25AM	22.5	21.17	0.3	1152	6.93	78.5	2.28	22.9	1.5
11:28AM	22.5	21.17	0.3	1154	6.94	60.3	1.94	22.6	2.4
11:31AM	22.5	21.17	0.3	1155	6.94	27.7	1.88	22.4	3.3
11:36AM	22.5	21.27	0.3	1156	6.94	23.6	1.63	22.3	4.2
11:39AM	22.5	21.17	0.3	1156	6.94	27.2	1.63	22.4	5.1
11:42AM	22.5	21.17	0.3	1156	6.94	32.3	1.65	22.4	6
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_15 Jan 2025

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH08		
Arrival Date/Time	16/01/2025 08:45AM	**Departure Date/Time**	16/01/2025 09:40AM
Executed By	Toby Spencer		
Weather	Sunny		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:41 AM

Groundwater Data

Well	GBH08	**Date/Time**	16/01/2025 08:45AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	13.535	**Well Depth (mbTOC)**	17.92
Product Depth (mbTOC)			
Comments & Product Description	No product or sediment detected. Well Head not recorded via PID.		
Equipment ID	-		
Sediment Thickness (m)			
Depth to Water with Pump (m)	13.535		

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	16/01/2025 08:45AM
Well	GBH08
Matrix Type	Water
Equipment ID	-
Sample Comments	
Field ID (Primary)	GBH08

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Slightly turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	13.58

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
08:51AM	15.5	13.57	0.4	234	5.77	-107.1	0.32	23.2	0
08:54AM	15.5	13.58	0.4	234	5.8	-102.8	0.23	23.2	1.2
08:57AM	15.5	13.58	0.4	234	5.82	-91.6	0.21	23.2	2.4
09:00AM	15.5	13.58	0.4	234	5.81	-82.4	0.18	23.2	3.6
09:04AM	15.5	13.58	0.4	232	5.82	-76.2	0.14	23.2	4.8
09:07AM	15.5	13.58	0.4	230	5.84	-70	0.15	23.3	6
09:10AM	15.5	13.58	0.4	229	5.81	-69	0.15	23.4	7.2
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_15 Jan 2025

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH07		
Arrival Date/Time	16/01/2025 09:50AM	**Departure Date/Time**	16/01/2025 10:35AM
Executed By	Toby Spencer		
Weather	Sunny		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:43 AM

Groundwater Data

Well	GBH07	**Date/Time**	16/01/2025 09:50AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	12.034	**Well Depth (mbTOC)**	14.93
Product Depth (mbTOC)			
Comments & Product Description	No product or sediment detected. Well Head not recorded via PID		
Equipment ID	-		
Sediment Thickness (m)			
Depth to Water with Pump (m)	12.034		

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	16/01/2025 10:00AM
Well	GBH07
Matrix Type	Water
Equipment ID	-
Sample Comments	-
Field ID (Primary)	GBH07

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Slightly turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	12.09

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
10:00AM	12.5	12.09	0.4	522	6.28	40.6	2.65	24.3	1.2
10:03AM	12.5	12.09	0.4	525	6.32	36.8	2.65	24.1	2.4
10:06AM	12.5	12.09	0.4	525	6.4	31	2.69	24	3.6
10:09AM	12.5	12.09	0.4	526	6.43	27.7	2.8	23.8	4.8
10:12AM	12.5	12.09	0.4	526	6.43	26.2	2.9	23.8	6
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_15 Jan 2025

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH06		
Arrival Date/Time	16/01/2025 10:50AM	**Departure Date/Time**	16/01/2025 11:40AM
Executed By	Toby Spencer		
Weather	Sunny		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:44 AM

Groundwater Data

Well	GBH06	**Date/Time**	16/01/2025 10:50AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	10.588	**Well Depth (mbTOC)**	15
Product Depth (mbTOC)			
Comments & Product Description	No product or sediment detected. Well Head not recorded via PID		
Equipment ID	-		
Sediment Thickness (m)			
Depth to Water with Pump (m)	10.588		

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	16/01/2025 11:04AM
Well	GBH06
Matrix Type	Water
Equipment ID	-
Sample Comments	-
Field ID (Primary)	GBH06

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	light brown
Purge Odour (Description)	sulphurous odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Moderately turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless, light brown
Sample Odour (Description)	sulphurous odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Moderately turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	10.62

Field Chemistry

	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
Time	**m bTOC**	**m bTOC**	**L/min**	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**	**L**
11:03AM	12.5	10.62	0.4	210	5.64	-20.3	0.76	23.6	1.2
11:06AM	12.5	10.62	0.4	208	5.7	-48.3	0.77	23.7	2.4
11:09AM	12.5	10.62	0.4	207	5.84	-39	0.79	23.7	3.6
11:12AM	12.5	10.62	0.4	208	5.79	-70	0.77	23.7	4.8
11:16AM	12.5	10.62	0.4	206	5.79	-72.9	0.73	23.8	6
11:17AM	12.5	10.62	0.4	206	5.78	-72.7	0.73	23.7	7.2
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_15 Jan 2025

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH05		
Arrival Date/Time	16/01/2025 12:00PM	**Departure Date/Time**	16/01/2025 12:43PM
Executed By	Toby Spencer		
Weather	Sunny		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:46 AM

Groundwater Data

Well	GBH05	**Date/Time**	16/01/2025 12:00PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	5.098	**Well Depth (mbTOC)**	8.096
Product Depth (mbTOC)			
Comments & Product Description	No product or sediment detected. Well Head not recorded via PID		
Equipment ID	-		
Sediment Thickness (m)			
Depth to Water with Pump (m)	5.098		

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	16/01/2025 12:09PM
Well	GBH05
Matrix Type	Water
Equipment ID	-
Sample Comments	Slight sulphurous odour at the start of sampling which then went away
Field ID (Primary)	GBH05

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	sulphurous odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Slightly turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	5.12

Field Chemistry

	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
Time	**m bTOC**	**m bTOC**	**L/min**	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**	**L**
12:08PM	6.5	5.12	0.4	256	5.41	56.5	1.21	26	1.2
12:11PM	6.5	5.12	0.4	255	5.49	33.8	1.22	25.9	2.4
12:14PM	6.5	5.12	0.4	250	5.59	18.1	1.32	25.7	3.6
12:17PM	6.5	5.12	0.4	255	5.62	9.1	1.41	25.8	4.8
12:20PM	6.5	5.12	0.4	255	5.64	10.7	1.41	25.7	6
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_15 Jan 2025

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH04		
Arrival Date/Time	16/01/2025 01:05PM	**Departure Date/Time**	16/01/2025 02:26PM
Executed By	Toby Spencer		
Weather	Sunny		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:47 AM

Groundwater Data

Well	GBH04	**Date/Time**	16/01/2025 01:05PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	9.059	**Well Depth (mbTOC)**	13.41
Product Depth (mbTOC)			
Comments & Product Description	No product or sediment detected. Well Head not recorded via PID		
Equipment ID	-		
Sediment Thickness (m)			
Depth to Water with Pump (m)	9.059		

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	16/01/2025 01:42PM
Well	GBH04R
Matrix Type	Water
Equipment ID	-
Sample Comments	
Field ID (Primary)	GBH04R

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Slightly turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	QC118
QA Sample ID (2)	QC218
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	9.06

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
01:41PM	10.5	9.06	0.4	1563	7.05	-68.5	0.72	24.4	1.2
01:44PM	10.5	9.06	0.4	1554	7.05	-66.3	0.83	24.4	2.4
01:47PM	10.5	9.06	0.4	1546	7.05	-65.2	0.77	24.6	3.6
01:51PM	10.5	9.06	0.4	1561	7.03	-59.9	0.76	24.4	4.8
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_15 Jan 2025

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH03		
Arrival Date/Time	15/01/2025 03:30PM	**Departure Date/Time**	15/01/2025 04:25PM
Executed By	Toby Spencer		
Weather	Sunny		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:30 AM

Groundwater Data

Well	GBH03	**Date/Time**	15/01/2025 03:30PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	9.987	**Well Depth (mbTOC)**	30.41
Product Depth (mbTOC)			
Comments & Product Description	No product or sediment. Well Head not recorded via PID		
Equipment ID	-		
Sediment Thickness (m)			
Depth to Water with Pump (m)	9.987		

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	15/01/2025 03:40PM
Well	GBH03
Matrix Type	Water
Equipment ID	-
Sample Comments	
Field ID (Primary)	GBH03

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Slightly turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	10.01

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
03:40PM	27.5	10.01	0.0004	1014	6.91	37	1.43	23.4	0
03:43PM	27.5	10.01	0.4	1015	6.98	37.9	1.23	23.1	1.2
03:46PM	27.5	10.01	0.4	1015	7.01	26.3	1.19	23.1	2.4
03:49PM	27.5	10.01	0.4	1011	7.02	19.5	2.31	23	3.6
03:52PM	27.5	10.01	0.4	1014	7.01	19.2	3.52	23.1	4.8
03:54PM	27.5	10.01	0.4	1013	7.02	13.1	1.13	22.9	6
03:56PM	27.5	10.01	0.4	1014	7.02	18.5	1.13	22.9	7.2
03:57PM	27.5	10.01	0.4	1014	7.02	18.2	1.13	22.9	8.4
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_15 Jan 2025

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	MW02		
Arrival Date/Time	15/01/2025 01:45PM	**Departure Date/Time**	15/01/2025 03:15PM
Executed By	Toby Spencer		
Weather	Sunny		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:25 AM

Groundwater Data

Well	MW02	**Date/Time**	15/01/2025 01:45PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	21.215	**Well Depth (mbTOC)**	23.48
Product Depth (mbTOC)			
Comments & Product Description	No product or sediment. Well Head not recorded via PID		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)	21.125		

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	15/01/2025 02:24PM
Well	MW02
Matrix Type	Water
Equipment ID	-
Sample Comments	-
Field ID (Primary)	MW02

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Moderately turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	21.22

Field Chemistry

Time	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
	m bTOC	m bTOC	L/min	uS/cm	pH Units	mV	mg/L	° C	L
02:37PM	21.9	21.22	0.0004	1144	6.78	37.9	3.76	23.5	0
02:40PM	21.9	21.22	0.0004	1141	6.82	36.4	3.52	22.7	1.6
02:43PM	21.9	21.22	0.0004	1139	6.89	36.6	3.18	22.7	3.2
02:46PM	21.9	21.22	0.4	1139	6.91	31.6	2.97	22.5	4.8
02:49PM	21.9	21.22	0.0004	1139	6.91	30.9	2.91	22.6	6.4
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_15 Jan 2025

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	GBH01		
Arrival Date/Time	15/01/2025 12:35PM	**Departure Date/Time**	15/01/2025 01:53PM
Executed By	Toby Spencer		
Weather	Sunny		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:24 AM

Groundwater Data

Well	GBH01	**Date/Time**	15/01/2025 12:35PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	16.509	**Well Depth (mbTOC)**	30.13
Product Depth (mbTOC)			
Comments & Product Description	No product or sediment. Well Head not recorded via PID		
Equipment ID	-		
Sediment Thickness (m)			
Depth to Water with Pump (m)	16.509		

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	15/01/2025 01:00PM
Well	GBH01
Matrix Type	Water
Equipment ID	-
Sample Comments	-
Field ID (Primary)	GBH01

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Slightly turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	16.51

Field Chemistry

	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
Time	**m bTOC**	**m bTOC**	**L/min**	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**	**L**
01:01PM	27.3	16.51	0.0008	1070	7.05	31	2.93	27.1	0
01:04PM	27.3	16.52	0.0003	1090	7	22.1	0.69	24	0.9
01:07PM	27.3	16.51	0.0003	1092	7.05	25.2	0.54	23.8	1.8
01:10PM	27.3	16.52	0.0003	1092	7.05	24.4	0.48	23.7	2.3
01:13PM	27.3	16.52	0.0003	1090	7.09	21.7	0.45	23.5	3
01:16PM	27.3	16.52	0.0003	1090	7.09	21.7	0.45	23.5	3.5
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Monitoring Round: P21560_15 Jan 2025

Location Visit

Site ID	P21560	**Monitoring Zone**	
Location Code	MW01		
Arrival Date/Time	15/01/2025 10:32AM	**Departure Date/Time**	15/01/2025 12:29PM
Executed By	Toby Spencer		
Weather	Sunny		
Comments	-		

Well Information

Gatic Type	Flush
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	PM
Date Checked	23 Jan 2025 11:22 AM

Groundwater Data

Well	MW01	**Date/Time**	15/01/2025 10:34AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	10.477	**Well Depth (mbTOC)**	12.38
Product Depth (mbTOC)			
Comments & Product Description	No product or sediment. Well Head not recorded via PID		
Equipment ID	-		
Sediment Thickness (m)			
Depth to Water with Pump (m)	10.477		

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	15/01/2025 11:01AM
Well	MW01
Matrix Type	Water
Equipment ID	-
Sample Comments	-
Field ID (Primary)	MW01

Purge Method	Low flow (micro)
Sample Method	Low flow (micro)
Waste Disposal	Drums

Purge Observations (purge start)

Purge Colour (Description)	colourless
Purge Odour (Description)	no odour
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	Slightly turbid

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	-
QA Sample ID (2)	-
QA Sample ID (3)	-
QA Sample ID (4)	-

Purge/Sampling Comments

Air Bubbles in Vials	No
Headspace PID Reading(s)	-
Reaction with Preservatives	No
Recharge-ability	Avg 0.1-0.4L/min
Water Depth at end of Sampling (m)	10.49

Field Chemistry

	Pump Inlet Depth	Standing Water Level	Purge rate (Field)	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)	Purge Volume
Time	**m bTOC**	**m bTOC**	**L/min**	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**	**L**
11:41AM	11	10.492	0.0004	798	7.14	41.7	4.16	23.2	0
11:44AM	11	10.49	0.0004	858	7.19	38.9	3.2	23	1.5
11:47AM	11	10.49	0.0004	876	7.19	38.4	2.94	23	2
11:50AM	11	2.49	0.0004	904	7.19	39.1	2.77	23	3.5
11:53AM	11	10.49	0.0004	916	7.19	40.5	2.7	23	3.8
11:56AM	11	10.49	0.0004	930	7.19	41.2	2.56	22.9	4.5
Stabilisation *				±3% (3)	±0.05pH (3)	±10mV (3)	±10% (3)	±10% (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Appendix H: Waste Disposal Documentation

Government of Western Australia
Department of Water and Environmental Regulation

Controlled Waste Tracking Form

Printed at: 17/01/2025 04:23 PM
Expiry Date: 10/02/2025
TRACKING FORM NUMBER: 6712699

Carrier's name: HAZRAD Australia Pty Ltd
Carrier licence number: T01102
Nominated waste facility (for unloading): Hazrad Australia

Driver's name: Damian Karauna Wintre Murray (6612886)
Driver licence number:
Driver's signature:

Vehicle/tank registration: 1HVD442
Vehicle capacity: 5700 kg
Waste containment type: Packaged

WASTE COLLECTION DETAILS

Waste holder's business/entity name	Street number and name	Suburb	Waste holder signature & name NOT for K110, K130, K210, J130,T140 & cat. R I confirm that this consignment is accurately described and is in proper condition for transport.	Collection date	Waste code	Solid(s) Liquid(l) Gas(g)	Amount	L kg m³	No. of pkgs.	pH (if req'd)
Senversa (40408921)	8/31 Peel Rd	O'Connor WA 6163		20/01/2025	L150 Industrial wash waters	l	~~400~~ 200 +20L	L	~~2~~ 1	
Senversa (40408921)	8/31 Peel Rd	O'Connor WA 6163		20/01/2025	N120 Soils contaminated with a controlled waste	s	~~800~~ 350	kg	~~4~~ 1	

UNLOADING DETAILS

To be completed by occupier of waste facility. If the waste facility is unmanned, the carrier or driver must enter the unloading date and provide the occupier of the waste facility with a copy of the form within seven days of unloading

Waste facility name	HAZRAD DUST	Waste facility address	Street No / Name: Suburb: 34 COCOS DR, BIBRA LAKE

Type of disposal, treatment or handling by facility

Gatehouse attendant	Attendant's signature	Unloading date	Waste code	Solid(s) Liquid(l) Gas(g)	Amount				Discrepancy (+/-)
DONNA JAMES	James	20/1/25	L150/N120	L/S	AS ABOVE	L	kg	m3	AS ABOVE

Senversa Pty Ltd

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