Annual Review 2023/24

Redirect Recycling Wetherill Park

24 Davis Road, Wetherill Park NSW

Redirect Recycling

22 October 2024

Revision History

Rev No.	Revision Date	Author / Position	Details	Authorised	
				Name / Position	Signature
1	22/10/2024	James Sutton Environmental Manager	For submission to DPHI	James Sutton Environmental Manager	J. Sutton

Table of Contents

Annual Review Title Block

Name of operation	Redirect Recycling
Name of operator	Redirect Recycling
Development consent / project approval #	SSD 7401
Name of holder of development consent / project approval	Bettergrow Pty Ltd
Mining lease #	N/A
Name of holder of mining lease	N/A
Water Access Licence #	N/A
Name of holder of water licence	N/A
MOP/RMP start date	N/A
MOP/RMP end date	N/A

I, James Sutton, certify that this audit report is a true and accurate record of the compliance status of Redirect Recycling Pty Ltd for the period 23rd August 2023 to 22nd August 2024 and that I am authorised to make this statement on behalf of Redirect Recycling Pty Ltd

Note.

a) *The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.*

b) *The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment, $22,000, or both.)*

Name of authorised reporting officer	James Sutton
Title of authorised reporting officer	Environment Manager
Signature of authorised reporting officer	J. Sutton
Date	22/10/2024

1 Introduction

1.1 Scope

This Annual Review has been prepared for the Redirect Recycling Pty Ltd (reDirect) Wetherill Park site and covers the twelve-month reporting period from 23 August 2023 to 22 August 2024. This Annual Review has been prepared to satisfy condition C9 of Development Consent SSD 7401 issued by the Minister for Planning on 11 October 2017.

The reDirect facility is located at 24 Davis Road, Wetherill Park NSW and consists of a resource recovery facility purpose built for washing and processing of construction and liquid waste.

This Annual Review is submitted to NSW Department of Planning, Housing and Infrastructure (DPHI). The Annual Review is also made available on the reDirect website:

Redirect Recycling

reDirect maintained compliance with all necessary approvals and licenses (EPL 21092 & SSD-7401) during the reporting period recording nil non-compliance items.

Table 1 Compliance

Relevant approval	Condition	Condition description (summary)	Compliance status	Comment	Where addressed in Annual Review
SSD 7401	C9	Annual review	Compliant	Nil	1.4 Annual Review Requirements
EPL 21092	L3.1	Noise	Compliant	Nil	Section 4.5 Noise
EPL 21092	O3.1	Air Quality	Compliant	Nil	Section 4.2 Air Quality
EPL 21092	O5	Water Quality	Compliant	Nil	4.3 Surface Water & 4.4 Groundwater

1.2 Background

Consent for State Significant Development 7401 (SSD-7401) was initially granted by the NSW Department of Planning Housing and Infrastructure (DPHI) on 22 December 2017. The facility was commissioned in August 2022 and shortly after the licence was transferred to reDirect (a Borg Company) who currently operate the site (see Figure 1).

Figure 1 Regional Context

The development has been staged with only the wash plant operational at this time. The landscape supplies food and garden organics approvals are not operational. Stage 1 includes the wash plant processing area only. Facilities covered under Stage 1 include:

- A main administration building, office and carpark constructed at the fore of the property. Site amenities, including toilets and kitchen, contained in the main administration building.
- Partially enclosed shed space, containing:
  - Two tier ground levels with external ramp to the west of the shed.
  - Four hydro-tips, and one dry feed hopper.
  - One weighbridge located west of the shed for the weighing of trucks on entry and prior to departure from the facility.
  - Screening walls.
  - Drill mud processing plant and equipment.
  - Drill mud machinery control rooms and internal office space.
- An inground sand filter located under the hardstand on the lower level of the site, adjacent to the south-western corner of the existing approved shed, to be used for stormwater retention and treatment.
- Rainwater / raw water storage tanks.
- Main thoroughfare, including:
  - A combined ingress/egress access driveway, providing a 12.5 m width at the western property boundary and facilitating connectivity between the off-street parking and internal heavy vehicle circulation areas.
  - Off-street parking spaces designed in accordance with AS2890.1 and AS2890.6.

- A combined ingress / egress driveway, providing a 5.5 m width adjacent to the eastern property boundary facilitating service access to the office complex and emergency access for Fire NSW.
- Internal hardstand areas and roadways.

The main waste types and materials accepted at the site include:

- Hydro-excavation and drill muds;
- Concrete slurry;
- Stormwater;
- Street sweepings; and
- General solid waste (soils that meet EPL conditions).

1.3 Consent

Consent for State Significant Development 7401 (SSD-7401) was initially granted by the then NSW Department of Planning and Environment (DPHI) on 22 December 2017. Consent for Modification 1 of SSD-7401 (SSD-7401-MOD-1) was approved by the NSW Department of Planning, Industry and Environment (DPIE) on 21 April 2021, with consent for Modification 2 (SSD-7401-MOD-2) granted on 30 November 2021. Consent for Modification 3 (SSD-7401-MOD-3) was granted by DPHI (name reverted from DPIE) on 1 April 2022. Consent for Modification 4 (SSD-7401-MOD-4) was granted by Department of Planning, Housing and Infrastructure (DPHI) (name reverted from DPHI).

Approval for SSD-7401 permitted the construction and operation of a resource recovery facility to process up to 160,000 tonnes per year of waste comprising of:

- 60,000 tonnes per annum (tpa) of hydro-excavation, drill muds and fluids.
- 70,000 tpa of food and garden organics.
- 30,000 tpa of packaged and bulk food and liquids.

In addition, the approval for SSD-7401 allowed for the operation of a landscaping material supplies facility for the storage and sale of up to 40,000 tpa of landscaping supplies.

Approval of SSD-7401-MOD-1 allowed for the increase of processing capacity to 350,000 tpa in conjunction with the following:

- Introduction of additional waste streams.
- Demolition of existing structures.
- Construction of a partially enclosed shed.

SSD-7401-MOD-2 included the replacement of the 30, 000 L sediment basin and associated bioretention basin, located within the southwest corner of the subject site. In lieu of the detention and bioretention basins it was proposed to utilise an existing inground concrete pit that remains onsite as part of a decommissioned weighbridge. This pit was modified and improved to include a sand filter to treat onsite stormwater.

SSD-7401-MOD-3 included the following:

- Replacement of the five (5) approved weighbridges with one (1) 25 m by 4.2 m weighbridge located approximately 55 m from the Facility intersection with Davis Road.
- To facilitate weighbridge installation and improve site safety, vehicle parking spaces were reconfigured:
    - Five (5) parking spaces immediately east of the existing site office.
    - Two (2) parking spaces located north of the inground sand filter, abutting the western façade of the drill muds processing shed.

  - Five (5) parking spaces located on the hardstand area immediately north of the western parcel of retained Cumberland Plain Woodland.
  - Remaining parking spaces were not altered.
- Relocation of proposed humeceptor water treatment device to the north-western corner of the central portion of Cumberland Plain Woodland onsite.
- Relocation of the 5,000 L rainwater tank to inside drill muds processing shed next to the control room. Rainwater from the existing office will now be captured via the Facility stormwater network.

SSD-7401-MOD-4 included an administrative amendment to reflect additional waste streams of concrete slurry and stormwater, originally assessed as appropriate in Modification 1, in the limits of consent.

This Annual Review covers facility operations conducted under Stage 1 of SSD-7401 (including modifications). Stage 2 (bulk landscape area and the organics processing area) is not operational, therefore assessment of conditions specific to Stage 2 have not been triggered or included within this report.

A summary of development consents including modifications currently held by Bettergrow Pty limited (original applicant) is presented in Table 2.

Table 2 Development Consents

Consent Description	Approval Date	Approval Authority	Approved Development
Development Consent SSD 7401	22 December 2017	NSW Minister for Planning	The construction and operation of a resource recovery facility to process up to 160,000 tonnes per year of waste comprising of: • 60,000 tpa of hydro-excavation, drill muds and fluids; • 70,000 tpa of food and garden organics; and • 30,000 tpa of packaged and bulk food and liquids. The operation of a landscaping material supplies facility for the storage and sale of up to 40,000 tpa of landscaping supplies.
Development Consent SSD 7401 MOD 1	21 April 2021	NSW Minister for Planning	Increase the processing capacity to 350,000 tpa of waste; introduce additional waste streams; demolish existing structures; construct a partially enclosed shed; and increase the hours of operation to 24/7.
Development Consent SSD 7401 MOD 2	30 November 2021	NSW Minister for Planning	Amend the stormwater management system to include the use of an in-ground concrete pit with sand filter.

Consent Description	Approval Date	Approval Authority	Approved Development
Development Consent SSD 7401 MOD 3	31 March 2022	NSW Minister for Planning	Amend the carparking configuration, replace the five on-site weighbridges with one weighbridge, relocate the 5 kilolitre underground rainwater tank to an above ground tank inside the drill muds processing shed and replace and relocate the Humeceptor with an Ecoceptor.
Development Consent SSD 7401 MOD 4	25 January 2024	NSW Minister for Planning	Administrative amendment to reflect additional waste streams of concrete slurry and stormwater, originally assessed as appropriate in Modification 1, in the limits of consent.

1.4 Annual Review Requirements

In accordance with condition C9 of Development Consent SSD 7401, annual review requirements and the sections within this review where these are addressed have been summarised in Table 3.

Table 3 Annual Review Requirements

Development Consent SSD 7401 – Condition C9	Section of Annual Review
Each year, the Applicant must review the environmental performance of the Development to the satisfaction of the Planning Secretary. This review must:	This Report
(a) describe the development that was carried out in the previous calendar year, and the Development that is proposed to be carried out over the next year;	Section 2 Section 8
(b) include a comprehensive review of the monitoring results and complaints records of the Development over the previous reporting period, which includes a comparison of these results against the: i. the relevant statutory requirements, limits or performance measures/criteria; ii. requirements of any plan or program required under this consent; iii. the monitoring results of previous years; and iv. the relevant predictions in the EIS;	Section 4 Section 5
(c) identify any non-compliance during the reporting period, and describe what actions were (or are being) taken to ensure compliance;	Section 4 Section 7
(d) identify any trends in the monitoring data over the life of the Development;	Section 4
(e) identify any discrepancies between the predicted and actual impacts of the Development, and analyse the potential cause of any significant discrepancies; and	Section 4
(f) describe what measures will be implemented over the next reporting period to improve the environmental performance of the Development.	Section 8

1.5 Environment Protection Licence

reDirect operates in accordance with Environment Protection Licence 21092 (EPL 21092), issued by the NSW Environment Protection Authority (EPA) under Section 55 of the *Protection of the Environment Operations Act 1997*. The current Licence version date is 01 June 2023.

1.6 Water Licences

reDirect does not hold any water licences.

1.7 Trade Waste Licence

reDirect's Trade Waste Service Contract with Sydney Water for the discharge of liquid trade waste into Sydney Water's sewerage system was initially approved on 01 August 2022 prior to the site's operational start date (23 August 2022). Throughout the reporting period, trade wastewater sampling was conducted every 60 days or on the day the trade waste was discharged thereafter. Substance characteristics analysed included:

- Biochemical Oxygen Demand
- Ammonia (As N)
- Sulphate
- Suspended Solids
- Total Dissolved Solids

reDirect have not had any trade waste sampling results exceed the criteria. Results were consistent with the previous reporting year (2022/2023).

1.8 Environmental Management Plans

As per Schedule 2 Part C of SSD 7401, the existing development is carried out in accordance with the Operational Environmental Management Plan (OEMP) and associated sub-plans.

In accordance with C8 Revision of Strategies, Plans and Programs, environmental management plans are required to be reviewed within three months of completion of an audit under C14 and/or approval of an annual report review under C9.

reDirect received correspondence from DPHI (8 December 2023) determining the 2023 Independent Environmental Audit to generally satisfy the reporting requirements of the consent and the NSW Planning *Independent Audit Post Approval Requirements* (2020). Additional correspondence was also received from DPHI (10 January 2024) determining the Annual review undertaken for the period 23 August 2022 to 22 August 2023 to generally satisfy the reporting requirements of the consent.

In accordance with C8 reDirect conducted a review of all management plans accordingly. The following management plans were reviewed.

- Operational Environmental Management Plan
- Air Quality and Odour Management Plan
- Stormwater Management Plan
- Operational Waste Management Plan
- Flood Emergency Plan
- Water Management Plan
- Emergency Plan
- Operational Traffic Management Plan
- Conceptual Decommissioning management Plan

Based on the findings of the previous Independent environmental Audit and Annual Review, no changes were deemed required to any of the management plans. A record of the review was recorded in the relevant document control section of each management plan and the plans re-published on the reDirect website on 10 January 2024.

1.9 Contacts

Table 4 outlines the contact details for site personnel responsible for managing environmental operations at the reDirect facility.

Table 4 Site Personnel

Name	Title	Contact Details
Neale Hogarth	Manager	0498 692 443
James Sutton	Environmental Manager	0414 987 168

1.10 Actions Required from Previous Annual Review

Table 5 represents activities proposed in Section 8 of Annual Review 22/23 and corresponding comments regarding outcomes of those proposed activities.

Table 5 Proposed Activities in 2023/24 Reporting Period

Activities Proposed in Reporting Period	Results achieved in Reporting Period
Ongoing implementation of Environmental Management Plans for the existing development and the project.	Operational staff have continued to implement daily inspection checklists (as required under OEMP). No non-compliance or notifiable incidents have occurred.
Complete installation of new centrifuge to increase efficiency in material processing.	New centrifuge was installed and commissioned in November 2023.
Attain new site-specific resource recovery order and exemption (SSRRO/E) for processed materials allowing new uses and increased efficiency for resource recovery activities.	Approved SSRRO/E's: The reDirect washed clay fines order July 2024 The reDirect washed sand order July 2024 The reDirect washed aggregate order July 2024 The reDirect washed clay fines exemption July 2024 The reDirect washed sand exemption July 2024 The reDirect washed aggregate exemption July 2024
Continue erosion and sediment control inspections and rectification works as necessary to manage stormwater discharge.	Operational staff have continued to implement daily inspection checklists (as required under OEMP). Checklist have documented regular sweeping of the site, inspection and maintenance of sediment control infrastructure.
Update current operational management plans to reflect recommendations from audit and findings from annual review.	Operational management plans were reviewed following the completion of the previous 2023 Independent Environment Audit and Annual Review. No changes were deemed required; the review was recorded in each respective document control table.

2 Operations during the Reporting Period

2.1 Production

Development Consent SSD 7401 allows for the receival and processing of up to 350,000 tonnes of waste per year, including 100,000 tonnes of liquid waste and 150,000 tonnes of general solid waste. During the reporting period reDirect received and processed a total of 80,031.08 tonnes of combined liquid and general solid waste. A total of 48977.81 tonnes were recovered and beneficially reused under applicable resource recovery orders, 184.02 tonnes were sent for lawful disposal, comprising of trash and light organics.

2.2 Facility Improvements

The following improvements were made to site infrastructure, plant and/or equipment during the reporting period:

- Installation of a second centrifuge for increased processing efficiency and ability to continue processing in case of breakdown or maintenance.

See **Figure 2** for location of site infrastructure.

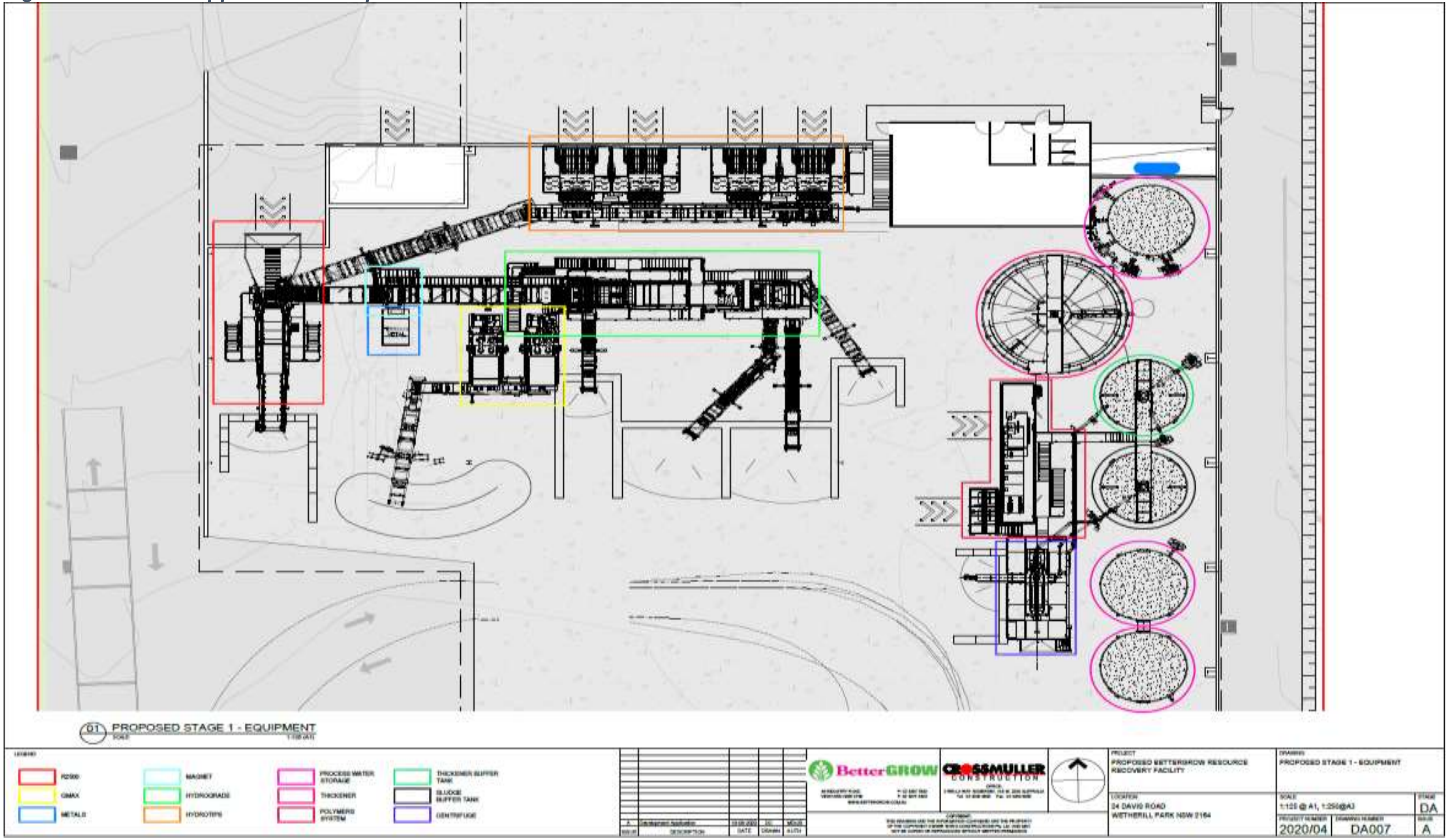
2.3 Site Activities

Environmental commitments and management/mitigation measures that were applied during the reporting period include the following:

- Operational works undertaken in accordance with the Operational Environmental Management Plan and sub-plans;
- Surface water sampling events;
- Background groundwater quality sampling events;
- Site environmental inspections; and
- Site wide communication of environmental requirements via inductions and Toolbox Talks.

No activities associated with additional construction were undertaken within the reporting period.

Figure 2 SSD 7401 Approved Development Area



3 Waste Management

Waste generated at the reDirect site is managed in accordance with the Waste Management Plan that has been developed for the facility. The management process incorporates a system of recycling and reuse of waste materials where possible. Waste that cannot be incorporated into this system is removed from site and taken to landfill for lawful disposal.

3.1 Solid Waste

A summary of waste and resource recovery materials removed from reDirect Wetherill Park during the reporting period is provided in Table 6.

Table 6 Waste Management 2023/24

Month	Destination		
	Tonnes	Waste	Reuse / Disposal
September 2023	948.22	Recovered aggregate 5-20mm	Resource recovery material
	32.76	Recovered aggregate 20-40mm	
	1402.54	Treated drill mud	
	609.02	Washed sand	
October 2023	445.58	Recovered aggregate 5-20mm	Resource recovery material
	543.96	Recovered aggregate 20-40mm	
	1349.90	Treated drill mud	
	1476.82	Washed sand	
November 2023		Recovered aggregate 5-20mm	Resource recovery material
	1361.26	Recovered aggregate 20-40mm	
	470.24	Recovered aggregate 40-80mm	
	1817.18	Treated drill mud	
	1232.44	Washed sand	
December 2023	37.48	Recovered aggregate 5-20mm	Resource recovery material
	1674.08	Treated drill mud	
	774.40	Washed sand	
January 2024	43.30	Organics / light trash	Central Waste – Kurri Kurri
	144.84	Recovered aggregate 5-20mm	Resource recovery material
	202.72	Recovered aggregate 40-80mm	
	2186.38	Treated drill mud	
	624.42	Washed sand	
February 2024	357.82	Recovered aggregate 5-20mm	Resource recovery material
	105.46	Recovered aggregate 20-40mm	
	2373.38	Treated drill mud	
	407.60	Washed sand	

March 2024	134.32	Recovered aggregate 5-20mm	Resource recovery material
	3236.43	Treated drill mud	
	918.84	Washed sand	
April 2024	247.10	Recovered aggregate 5-20mm	Resource recovery material
	4051.19	Treated drill mud	
	891.56	Washed sand	
May 2024	139.74	Recovered aggregate 5-20mm	Resource recovery material
	36.50	Recovered aggregate 20-40mm	
	73.10	Recovered aggregate 40-80mm	
	3940.91	Treated drill mud	
	862.14	Washed sand	
June 2024	140.72	Organics / light trash	Central Waste – Kurri Kurri
	188.14	Recovered aggregate 5-20mm	Resource recovery material
	86.98	Recovered aggregate 20-40mm	
	33.38	Recovered aggregate 40-80mm	
	2973.22	Treated drill mud	
	1203.06	Washed sand	
July 2024	317.88	Recovered aggregate 5-20mm	Resource recovery material
	2580.12	Treated drill mud	
	1093.76	Washed sand	
August 2024	41.86	Recovered aggregate 5-20mm	Resource recovery material
	3392.72	Treated drill mud	
	699.94	Washed sand	
TOTAL	**184.02**	**Organics / light trash**	**Wanless Waste Management Kemps Creek**
	4050.5	**Recovered Aggregate 05–20mm**	**Resource recovery material**
	2166.92	**Recovered Aggregate 20–40mm**	**Resource recovery material**
	779.44	**Recovered Aggregate 40–80mm**	**Resource recovery material**
	30978.05	**Treated Drilling Mud**	**Resource recovery material**
	10794	**Washed Sand**	**Resource recovery material**

Waste types in Table 6 are further described as:

- **Organics and Light Trash:** General waste including a mix of organics such as sticks, leaf litter and other organic matter mixed with light film plastic and other small anthropogenic inclusions.
- **Resource Recovery Material:** Material meeting a general or site-specific resource recovery order made under clause 93 of the 2014 Waste Regulation and/or section 286A of the Protection of the Environment Operations Act 1997.

There was no trackable waste generated during this reporting period.

3.2 Trade Waste

Redirect's current trade waste agreement (Consent no: 51950) allows for the following discharge rates to Sydney Water's wastewater system:

- Instantaneous maximum rate of pumped discharge 8,000 litres per second
- Maximum daily discharge 320 kilolitres
- Average daily discharge 200 kilolitres

The last sampling event conducted during the reporting period was completed on 24 July 2024, 29 days prior to the end of the reporting period. A total of 147 kilolitres were discharged during the sampling event, well below the average and maximum daily discharge limits. Additionally, sampling completed since the commencement of the agreement confirmed a total of 83515.33 kilolitres had been disposed as trade waste up to this date, equating to a daily average below 200 kilolitres.

Water discharged to trade waste has nearly doubled when compared to the readings comparable from the previous reporting year (23 August 2023 - 02 August 2024, 20,487 Kilolitres and 02 August 2023 – 24 July 2024, 55,028.33 Kilolitres). This increase is attributed to increased waste throughput in the facilities second full operational year.

4 Environmental Monitoring and Performance

4.1 Environmental Management System

ReDirect operates in accordance with the Operational Environmental Management Plan (OEMP) as documented in Section 1.8. This OEMP aims to ensure adequate management, monitoring and mitigation systems are in place to protect the surrounding environment. Similarly, construction activities are undertaken in accordance with the Construction Environmental Management Plan (CEMP).

Environmental performance and management are conducted in accordance with the requirements of SSD 7401, its subsequent modifications (MOD1, MOD2, MOD3 & MOD4), and EPL 21092. Environmental performance and monitoring are an integral part of environmental management system. The measurement and evaluation of monitoring results allows for the assessment of performance against quantitative and qualitative standards and assists in the identification of any non-conformances or areas that may require additional attention.

4.2 Air Quality

Air quality is monitored in accordance with the reDirect's Operational Air Quality and Odour Management Plan (AQOMP). Condition O3.1 of EPL 21092 states that:

"*The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.*"

Additionally, Condition L5.1 of EPL 21092 states that:

"The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises."

EPL 21092 does not specify dust monitoring be undertaken, the AQOMP assessed material handling and processing in the drill mud processing plant to have minimal fugitive dust emissions due to the high moisture content of waste received and retained within recovered processed materials. Additionally, road surfaces at the Site are sealed and processing is undertaken within the partially enclosed shed, currently no other activities approved under SSD-7401 are undertaken as part of the development. All current dust management procedures undertaken as part of the AQOMP and OEMP are currently deemed suitable and effective.

As Stage 1 operations only involves the drill mud processing plant, dust emissions have been identified as the only air quality impact associated with these operations. Therefore, no management of odour generating activities was required during the reporting period.

4.3 Surface Water

Surface water is considered any water other than process water, leachate or wastewater being defined as:

- Process water is water used in the processing of drill muds.
- Leachate is water generated through rain coming into contact with soil stockpiles. Leachate is not anticipated to be generated onsite during Stage 1 of operations due to bulk storage bays being underneath the main processing shed.
- Wastewater is water generated through the processing of drill muds that require disposal or have no further use on site.

Surface water is, thus, principally stormwater runoff from building roofs and areas outside waste processing or handling areas.

Surface water discharges from operational areas of the site and areas with potential to discharge off-site are summarised in the following table. Surface water may also discharge from other areas of the site, but these areas are away from operational areas.

Table 7 Surface Water Sources and Management

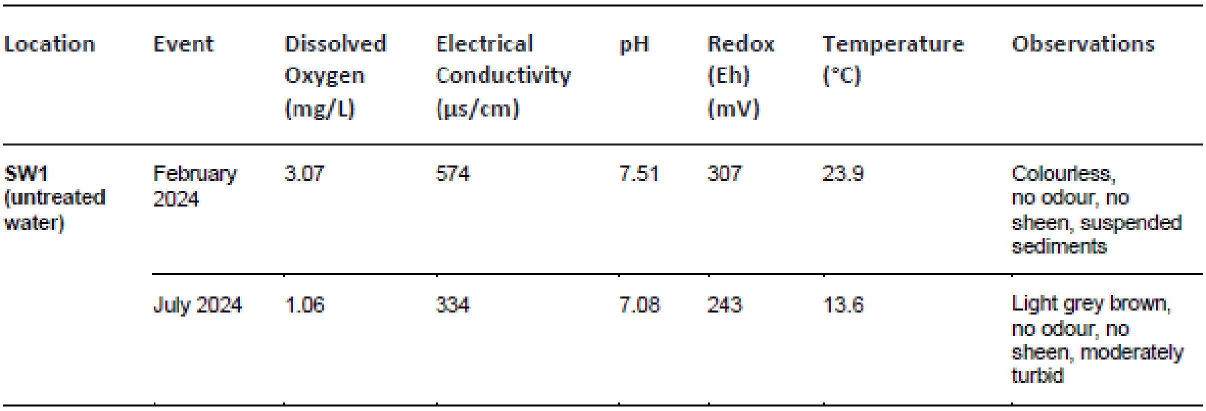
Site Feature	Purpose	Runoff Water Sources	Management
Entrance Driveway	Site access	The driveway receives runoff from paved areas near the weighbridge and entrance areas.	Management under the surface water management plan – though this is considered a low risk of impact.
Drill Mud Processing Shed	Rainwater re-use	A portion of roof water runoff from the drill mud processing shed is to be directed by downpipes to an above-ground rainwater harvesting tank which has been sized to meet the facility's reuse demand for non-potable water of 5 kL. The harvested volume from the shed roof is reused internally through the amenities connections with tank overflows being diverted directly to the stormwater system. The remainder of the roof water collected is to be directed to the stormwater system.	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly. Regularly check the structural integrity of the tanks. Check for any accumulated litter, sediment, or debris on or within the tanks.
Stormwater System	Collection, treatment and transportation	Runoff from majority of sealed surfaces on the site, all roof areas not connected to the rainwater tank	Management under the stormwater management plan (Eclipse 2021) and the WMP.

	of stormwater from the site.	system and rainwater tank overflow will be diverted into the stormwater system.	Remove deposited sediment and debris from the sand filter bed/detention pit and Ecoceptor inlet/outlet areas. Regularly check the structural integrity of hydraulic structures.

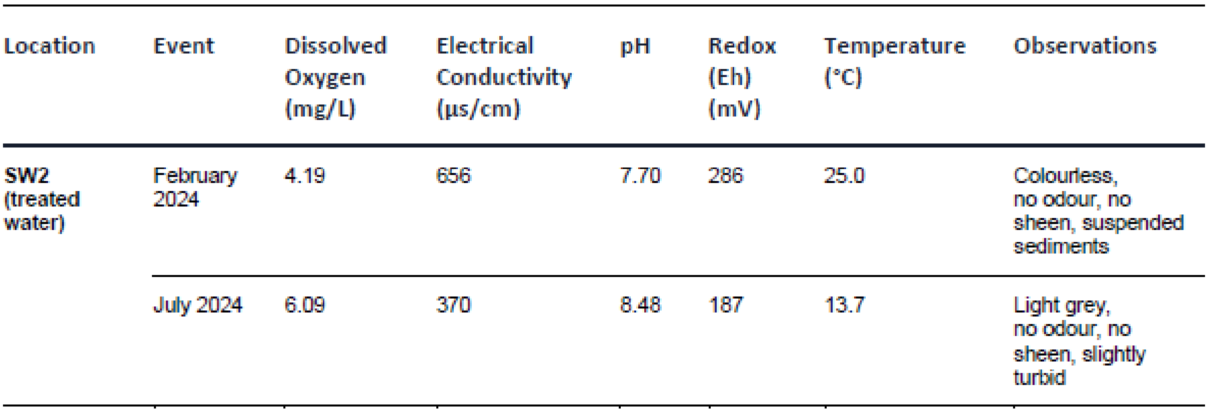
In accordance with the reDirect Water Management Plan, six-monthly (following a rainfall event) sampling of two sampling points on-site (SW1 in the sand filter and SW2 in the ecoceptor outflow sampling point) was undertaken during this reporting period.

A summary of the results is presented in Table 8 and Table 9.

Table 8 Surface Water Observations and Geotechnical Requirements

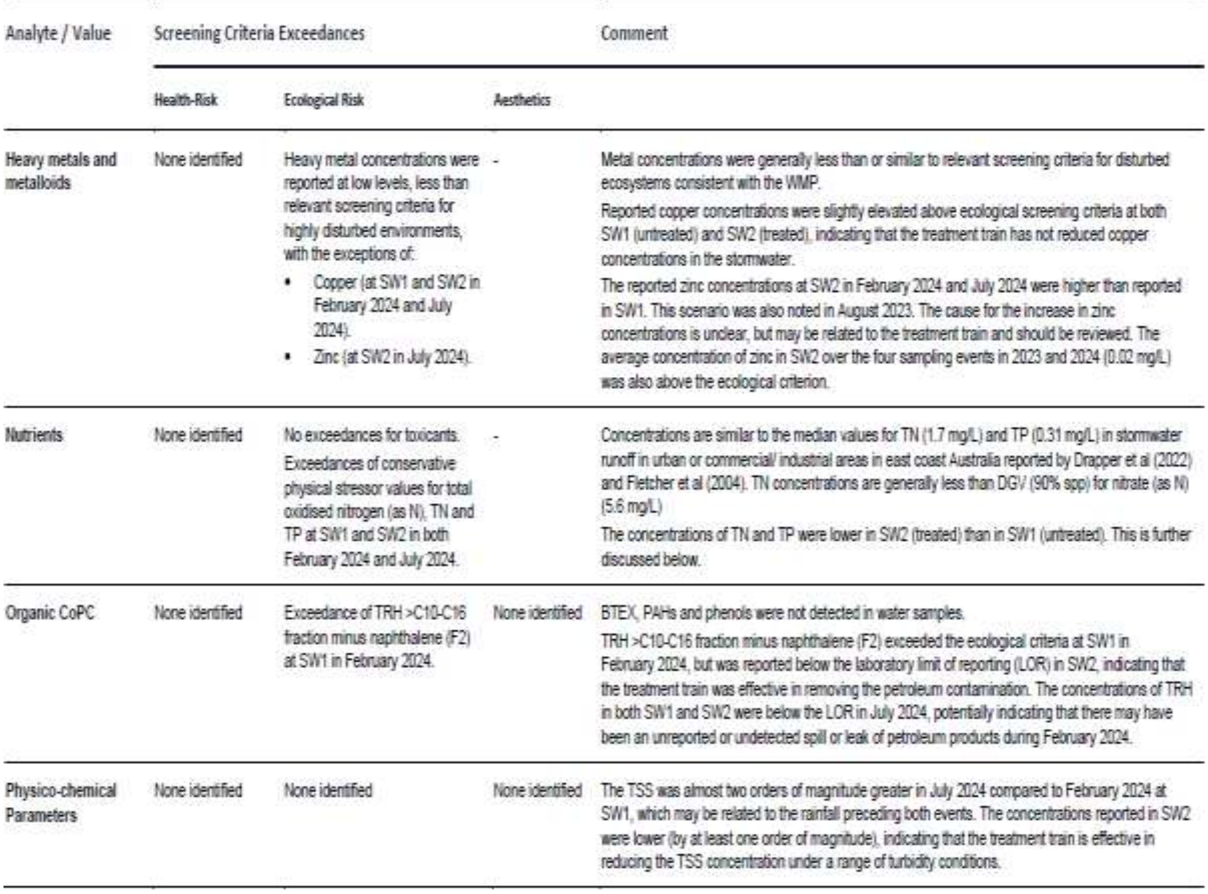


Location	Event	Dissolved Oxygen (mg/L)	Electrical Conductivity (µs/cm)	pH	Redox (Eh) (mV)	Temperature (°C)	Observations
SW1 (untreated water)	February 2024	3.07	574	7.51	307	23.9	Colourless, no odour, no sheen, suspended sediments
	July 2024	1.06	334	7.08	243	13.6	Light grey brown, no odour, no sheen, moderately turbid



Location	Event	Dissolved Oxygen (mg/L)	Electrical Conductivity (µs/cm)	pH	Redox (Eh) (mV)	Temperature (°C)	Observations
SW2 (treated water)	February 2024	4.19	656	7.70	286	25.0	Colourless, no odour, no sheen, suspended sediments
	July 2024	6.09	370	8.48	187	13.7	Light grey, no odour, no sheen, slightly turbid

Table 9 Surface Water Analytical Summary



Analyte / Value	Screening Criteria Exceedances			Comment
	Health-Risk	Ecological Risk	Aesthetics	
Heavy metals and metalloids	None identified	Heavy metal concentrations were reported at low levels, less than relevant screening criteria for highly disturbed environments, with the exceptions of: • Copper (at SW1 and SW2 in February 2024 and July 2024). • Zinc (at SW2 in July 2024).	-	Metal concentrations were generally less than or similar to relevant screening criteria for disturbed ecosystems consistent with the WMP. Reported copper concentrations were slightly elevated above ecological screening criteria at both SW1 (untreated) and SW2 (treated), indicating that the treatment train has not reduced copper concentrations in the stormwater. The reported zinc concentrations at SW2 in February 2024 and July 2024 were higher than reported in SW1. This scenario was also noted in August 2023. The cause for the increase in zinc concentrations is unclear, but may be related to the treatment train and should be reviewed. The average concentration of zinc in SW2 over the four sampling events in 2023 and 2024 (0.02 mg/L) was also above the ecological criterion.
Nutrients	None identified	No exceedances for toxicants. Exceedances of conservative physical stressor values for total oxidised nitrogen (as N), TN and TP at SW1 and SW2 in both February 2024 and July 2024.	-	Concentrations are similar to the median values for TN (1.7 mg/L) and TP (0.31 mg/L) in stormwater runoff in urban or commercial/ industrial areas in east coast Australia reported by Drapper et al (2022) and Fletcher et al (2004). TN concentrations are generally less than DGV (90% spp) for nitrate (as N) (5.6 mg/L) The concentrations of TN and TP were lower in SW2 (treated) than in SW1 (untreated). This is further discussed below.
Organic CoPC	None identified	Exceedance of TRH >C10-C16 fraction minus naphthalene (F2) at SW1 in February 2024.	None identified	BTEX, PAHs and phenols were not detected in water samples. TRH >C10-C16 fraction minus naphthalene (F2) exceeded the ecological criteria at SW1 in February 2024, but was reported below the laboratory limit of reporting (LOR) in SW2, indicating that the treatment train was effective in removing the petroleum contamination. The concentrations of TRH in both SW1 and SW2 were below the LOR in July 2024, potentially indicating that there may have been an unreported or undetected spill or leak of petroleum products during February 2024.
Physico-chemical Parameters	None identified	None identified	None identified	The TSS was almost two orders of magnitude greater in July 2024 compared to February 2024 at SW1, which may be related to the rainfall preceding both events. The concentrations reported in SW2 were lower (by at least one order of magnitude), indicating that the treatment train is effective in reducing the TSS concentration under a range of turbidity conditions.

There are indications that concentrations of key parameters (TSS, TN and TP) are lower at SW2 (downstream of treatment train) than SW1 (upstream of system), which was also noted during the 2023 sampling events. The water, sediment and erosion controls in the WMP should continue to be followed to minimise migration of sediments and fines into the stormwater system. Annual surface water monitoring should continue from both SW1 and SW2.

A copy of the *Annual Surface Water and Baseline Groundwater Condition Report - 2024* (Senversa, 2024) has been included in Appendix A.

4.4 Groundwater

In accordance with the reDirect Water Management Plan, a monitoring network was established, including the installation of 6 shallow groundwater monitoring wells that intersect the water table located within the shale bedrock.

These new wells were installed as part of the site infrastructure upgrades. Senversa (engaged by reDirect) designed a groundwater monitoring network that seeks to characterise groundwater both hydraulically up-gradient and down-gradient of the site. The location of the groundwater monitoring wells is presented on **Figure 3**. The groundwater monitoring network comprises:

- One well (MW06) that captures the quality of background groundwater migrating onto the site from the north.

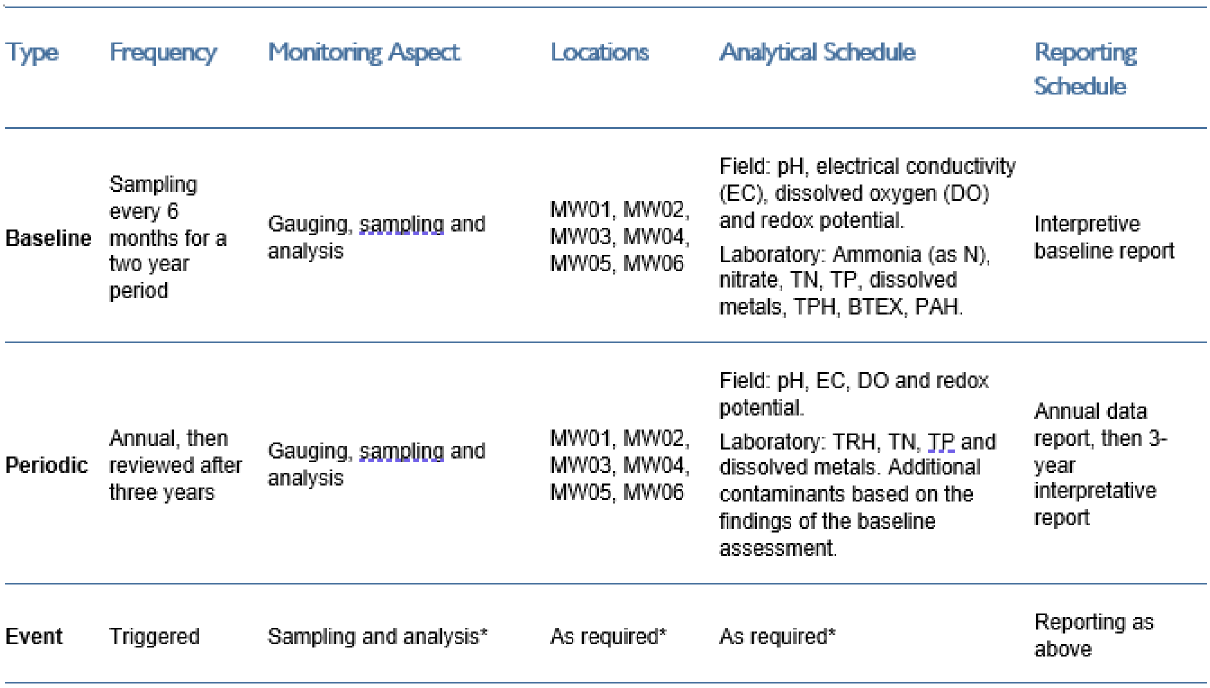
- Five wells (MW01, MW02, MW03, MW04, MW05) placed in targeted locations with the following rationale.
- MW01 – Down gradient of the stormwater treatment sand filter box.
- MW02 – Down gradient of the Ecoceptor.
- MW03 – Western site boundary down gradient of neighbouring property.
- MW04 – Down gradient of the drill mud processing facility on eastern boundary.
- MW05 – Middle level of site in the vicinity of the historic aboveground storage tanks (ASTs).

The wells target the shallow groundwater as this is most susceptible to impact.

Figure 3 Groundwater Monitoring Locations

A baseline monitoring event is required, with ongoing groundwater monitoring conducted on a periodic basis. Additional monitoring will likely be required - triggered as a response to changes in site activities such as the commencement of Stage 2 operations. The monitoring locations, and sampling, analytical and reporting schedules are provided in Table 10.

Table 10 Groundwater Monitoring Frequency



Type	Frequency	Monitoring Aspect	Locations	Analytical Schedule	Reporting Schedule
Baseline	Sampling every 6 months for a two year period	Gauging, sampling and analysis	MW01, MW02, MW03, MW04, MW05, MW06	Field: pH, electrical conductivity (EC), dissolved oxygen (DO) and redox potential. Laboratory: Ammonia (as N), nitrate, TN, TP, dissolved metals, TPH, BTEX, PAH.	Interpretive baseline report
Periodic	Annual, then reviewed after three years	Gauging, sampling and analysis	MW01, MW02, MW03, MW04, MW05, MW06	Field: pH, EC, DO and redox potential. Laboratory: TRH, TN, TP and dissolved metals. Additional contaminants based on the findings of the baseline assessment.	Annual data report, then 3-year interpretative report
Event	Triggered	Sampling and analysis*	As required*	As required*	Reporting as above

All sampling was undertaken by a suitably qualified and experienced person consistent with guidance in:

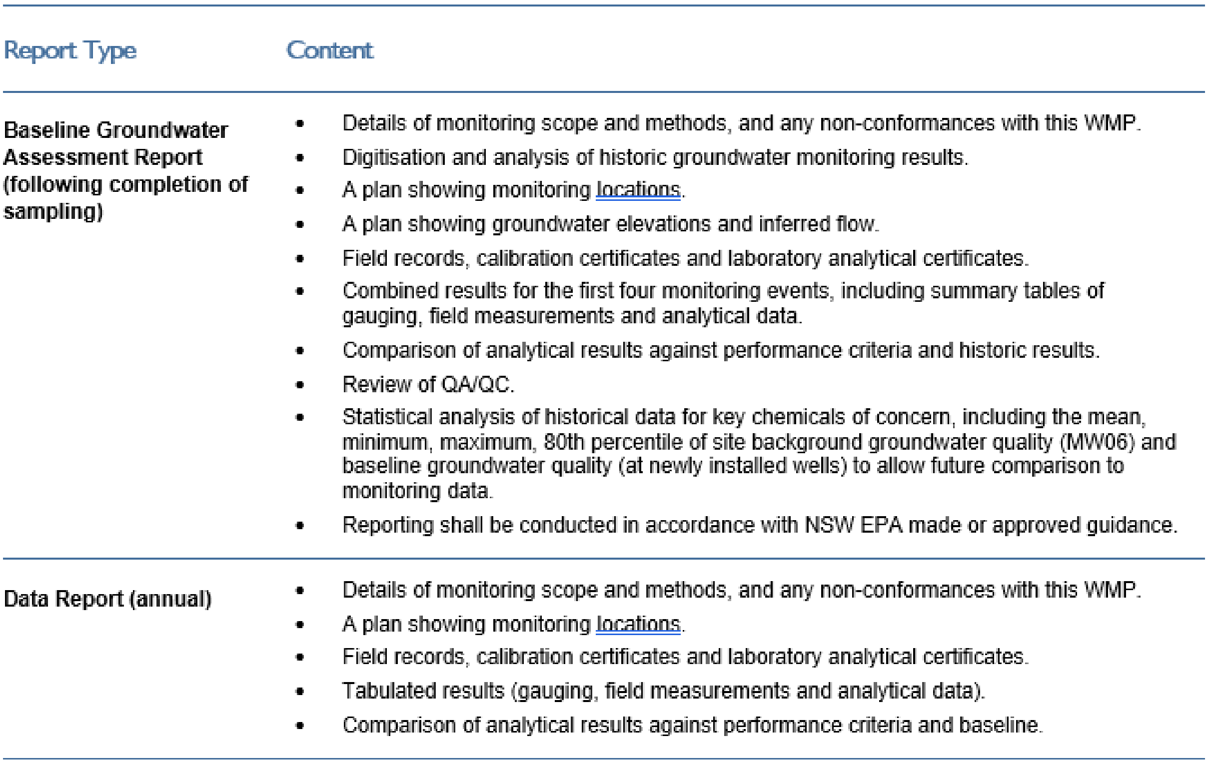
- DEC (2004). Approved Methods for Sampling and Analysis of Water Pollutants in NSW. March 2004.
- AS/NZS 5667.1:1998, Water Quality – Sampling series.
- NEPC (2013). Schedule B (2) Guideline on Site Characterisation.

Appropriate data QA/QC procedures consistent with the above guidance were implemented and assessed as part of the program.

All analyses was conducted by a NATA accredited laboratory.

Groundwater management reporting requirements are outlined in Table 11.

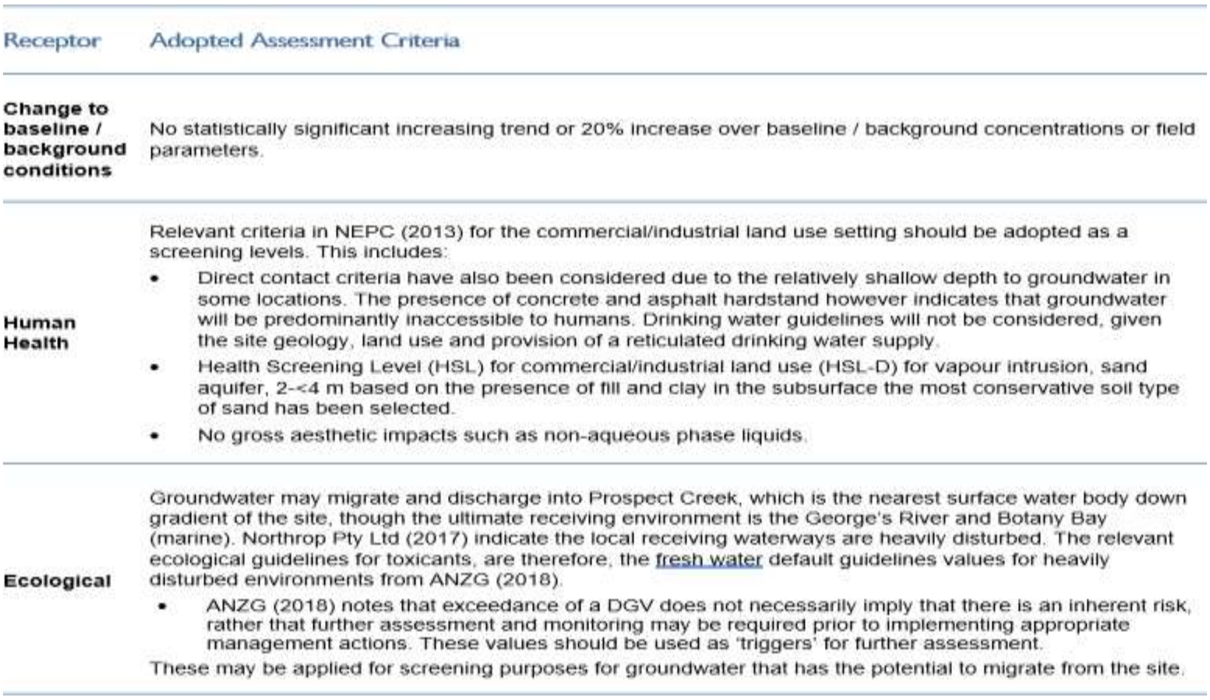
Table 11 Groundwater Reporting Requirements



Report Type	Content
Baseline Groundwater Assessment Report (following completion of sampling)	• Details of monitoring scope and methods, and any non-conformances with this WMP. • Digitisation and analysis of historic groundwater monitoring results. • A plan showing monitoring locations. • A plan showing groundwater elevations and inferred flow. • Field records, calibration certificates and laboratory analytical certificates. • Combined results for the first four monitoring events, including summary tables of gauging, field measurements and analytical data. • Comparison of analytical results against performance criteria and historic results. • Review of QA/QC. • Statistical analysis of historical data for key chemicals of concern, including the mean, minimum, maximum, 80th percentile of site background groundwater quality (MW06) and baseline groundwater quality (at newly installed wells) to allow future comparison to monitoring data. • Reporting shall be conducted in accordance with NSW EPA made or approved guidance.
Data Report (annual)	• Details of monitoring scope and methods, and any non-conformances with this WMP. • A plan showing monitoring locations. • Field records, calibration certificates and laboratory analytical certificates. • Tabulated results (gauging, field measurements and analytical data). • Comparison of analytical results against performance criteria and baseline.

Condition L1 of the EPL states that the licensee must comply with section 120 of the POEO Act, which prohibits the pollution of waters. Assessment of groundwater quality will principally be via comparison against baseline and site background conditions. Table 12 below summarises the groundwater quality criteria to be adopted to assess whether pollution of waters may have occurred.

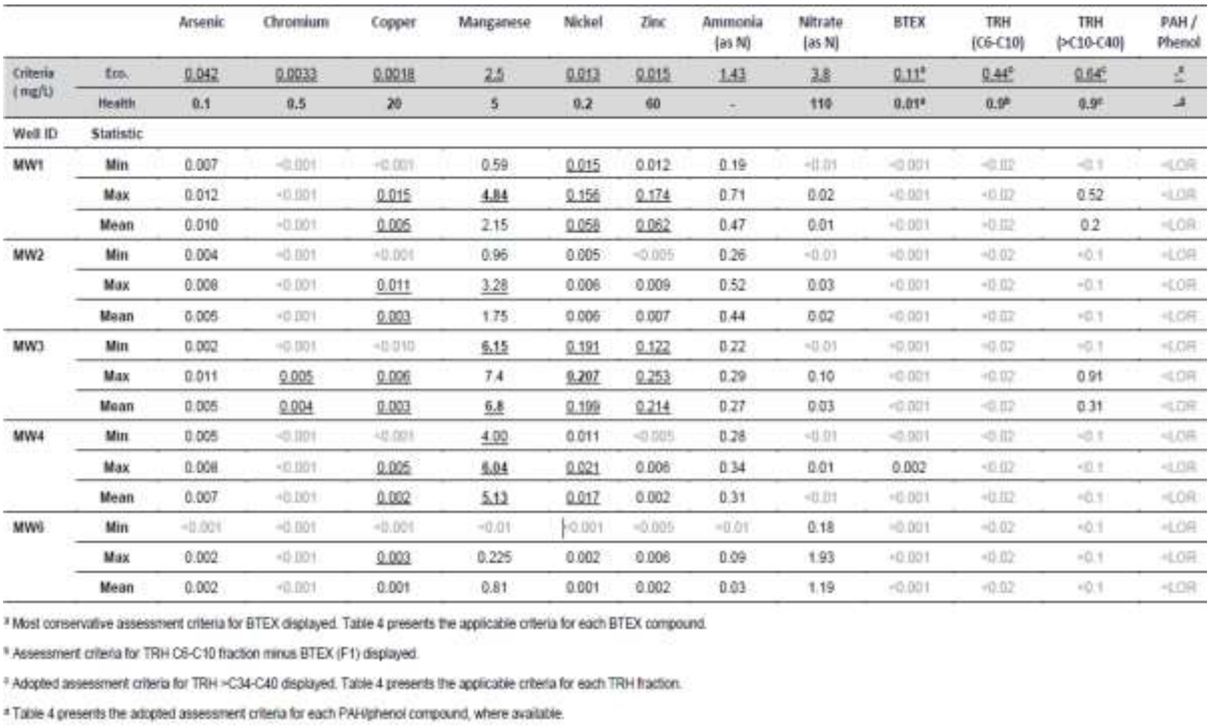
Table 12 Groundwater Reporting Requirements



Receptor	Adopted Assessment Criteria
Change to baseline / background conditions	No statistically significant increasing trend or 20% increase over baseline / background concentrations or field parameters.
Human Health	Relevant criteria in NEPC (2013) for the commercial/industrial land use setting should be adopted as a screening levels. This includes: • Direct contact criteria have also been considered due to the relatively shallow depth to groundwater in some locations. The presence of concrete and asphalt hardstand however indicates that groundwater will be predominantly inaccessible to humans. Drinking water guidelines will not be considered, given the site geology, land use and provision of a reticulated drinking water supply. • Health Screening Level (HSL) for commercial/industrial land use (HSL-D) for vapour intrusion, sand aquifer, 2-<4 m based on the presence of fill and clay in the subsurface the most conservative soil type of sand has been selected. • No gross aesthetic impacts such as non-aqueous phase liquids.
Ecological	Groundwater may migrate and discharge into Prospect Creek, which is the nearest surface water body down gradient of the site, though the ultimate receiving environment is the George's River and Botany Bay (marine). Northrop Pty Ltd (2017) indicate the local receiving waterways are heavily disturbed. The relevant ecological guidelines for toxicants, are therefore, the fresh water default guidelines values for heavily disturbed environments from ANZG (2018). • ANZG (2018) notes that exceedance of a DGV does not necessarily imply that there is an inherent risk, rather that further assessment and monitoring may be required prior to implementing appropriate management actions. These values should be used as 'triggers' for further assessment. These may be applied for screening purposes for groundwater that has the potential to migrate from the site.

The analytical results for the groundwater samples are presented in Table 4, with exceedances of the adopted site assessment criteria displayed on Figure 3 (Senversa, 2024). Table 13 below outlines the minimum, maximum and mean concentration of key CoPCs in each groundwater monitoring well during the four biannual sampling events, thus establishing the baseline groundwater conditions as required by the Surface Water Management Plan.

Table 13 Groundwater Statistical Analysis of Analytical Data



		Arsenic	Chromium	Copper	Manganese	Nickel	Zinc	Ammonia (as N)	Nitrate (as N)	BTEX	TRH (C6-C10)	TRH (>C10-C40)	PAH / Phenol
Criteria (mg/L)	Eco.	0.042	0.0033	0.0018	2.5	0.013	0.015	1.43	3.8	0.11[a]	0.44[b]	0.64[c]	-[d]
	Health	0.1	0.5	20	5	0.2	60	-	110	0.01[a]	0.9[b]	0.9[c]	-[d]
Well ID	Statistic												
MW1	Min	0.007	<0.001	<0.001	0.59	0.015	0.012	0.19	<0.01	<0.001	<0.02	<0.1	<LOR
	Max	0.012	<0.001	0.015	4.84	0.156	0.174	0.71	0.02	<0.001	<0.02	0.52	<LOR
	Mean	0.010	<0.001	0.006	2.15	0.058	0.062	0.47	0.01	<0.001	<0.02	0.2	<LOR
MW2	Min	0.004	<0.001	<0.001	0.96	0.005	<0.005	0.26	<0.01	<0.001	<0.02	<0.1	<LOR
	Max	0.008	<0.001	0.011	3.28	0.006	0.009	0.52	0.03	<0.001	<0.02	<0.1	<LOR
	Mean	0.006	<0.001	0.003	1.75	0.006	0.007	0.44	0.02	<0.001	<0.02	<0.1	<LOR
MW3	Min	0.002	<0.001	<0.010	6.15	0.191	0.122	0.22	<0.01	<0.001	<0.02	<0.1	<LOR
	Max	0.011	0.005	0.006	7.4	0.207	0.253	0.29	0.10	<0.001	<0.02	0.91	<LOR
	Mean	0.006	0.004	0.003	6.8	0.199	0.214	0.27	0.03	<0.001	<0.02	0.31	<LOR
MW4	Min	0.006	<0.001	<0.001	4.00	0.011	<0.005	0.28	<0.01	<0.001	<0.02	<0.1	<LOR
	Max	0.008	<0.001	0.005	6.04	0.021	0.006	0.34	0.01	0.002	<0.02	<0.1	<LOR
	Mean	0.007	<0.001	0.002	5.13	0.017	0.002	0.31	<0.01	<0.001	<0.02	<0.1	<LOR
MW6	Min	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.01	0.18	<0.001	<0.02	<0.1	<LOR
	Max	0.002	<0.001	0.003	0.225	0.002	0.006	0.09	1.93	<0.001	<0.02	<0.1	<LOR
	Mean	0.002	<0.001	0.001	0.81	0.001	0.002	0.03	1.19	<0.001	<0.02	<0.1	<LOR

[a] Most conservative assessment criteria for BTEX displayed. Table 4 presents the applicable criteria for each BTEX compound.

[b] Assessment criteria for TRH C6-C10 fraction minus BTEX (F1) displayed.

[c] Adopted assessment criteria for TRH >C34-C40 displayed. Table 4 presents the applicable criteria for each TRH fraction.

[d] Table 4 presents the adopted assessment criteria for each PAH/phenol compound, where available.

Although the WMP outlined that annual groundwater monitoring be conducted for three years post completion of baseline monitoring, Senversa (2024) recommends that this is no longer required.

Baseline groundwater monitoring commenced at the same time as commencement of operations at the site and no detrimental statistical trends, considered to be associated with site operations, have been noted in groundwater quality during this time. It is considered unlikely that additional changes in groundwater quality would be noted after a further one year of groundwater monitoring given the sealed nature of the operational portion of the site, the low hydraulic conductivity of the underlying aquifer and adherence to the Applicant's Management and Mitigation Measures that form Appendix B of the Development Consent. Further triggers, in accordance with Table 5.2 of the WMP, for additional groundwater monitoring should include if additional processes commence at the site (e.g. food and garden organics [FGO], food and liquid depackaging [FLD], or other trackable liquid waste), if a potentially contaminating substance is to be stored or used/processed on the site, or a major incident occurs at the site (e.g. spill or leak of liquid substance/leachate, fire, etc). A review of the requirement for groundwater monitoring should be conducted every three years and when additional processes commence at the site.

4.5 Noise

In accordance with EPL 21092, noise from the premises must not exceed the limits noted in Table 13. In accordance with Development Consent SSD-7401 all construction activities related to the development must also comply with the limits in Table 13.

Table 14 Noise Limits dB(A)

Location	Day $L_{Aeq(15\ minute)}$	Evening $L_{Aeq(15\ minute)}$	Night $L_{Aeq(15\ minute)}$	Night $L_{Aeq(1\ minute)}$
All sensitive receivers	35	35	35	45
Note: *Day* – The period from 7:00am to 6:00pm *Evening* – The period from 6:00pm to 10:00pm *Night* – The period from 10:00pm to 7:00am L_{Aeq} means the equivalent continuous noise level – the level of noise equivalent the energy-average of noise levels occurring over a measurement period.				

4.5.1 Operational Noise

EPL 21092 stipulates that noise monitoring is to be carried out upon the request of an authorised NSW EPA officer. If requested, noise monitoring must be undertaken in accordance with *Australian Standard AS 1055: 2018 Acoustics - Description and measurement of environmental noise*, and the compliance monitoring guidance provided in the NSW *Noise Policy for Industry* (EPA 2017).

During the 2023/24 reporting period, reDirect was not requested to complete any noise monitoring.

4.6 Traffic

In accordance with the reDirect Operational Traffic Management Plan (OTMP), observations of compliance are to be undertaken at three monthly intervals, to document any remedial actions required with employees, heavy vehicle drivers or haulage companies.

reDirect carry out daily observations of traffic management and compliance against mitigation measures included within the OTMP. Observations are recorded on the *Operational Environmental Management Plan – Wetherill Park Inspection Checklist*. No breaches of traffic management procedures were recorded during the reporting period. Refer to Appendix C - Example Quarterly OEMP Checklist for example records.

5 Community Relations

5.1 Environmental Complaints

No community complaints were received during the 2023/24 reporting period.

5.2 Community Liaison

5.2.1 Information Exchange

In accordance with EPL 21092 condition M3.1 and M3.2, reDirect operate a telephone complaints line for the purpose of receiving any complaints from the members of the public in relation to activities conducted at the premises or by any vehicle or mobile plant. The complaints line is published on the reDirect recycling website, so the public know how to contact reDirect should a scenario trigger a complaint.

6 Independent Audit

Development Consent SSD 7401 condition C13 sets out requirements for independent environmental audits of the Development. reDirect commissioned environmental consultants RPS AAP Consulting Pty Ltd (RPS) to conduct an Independent Environmental Audit (IEA) of the site for operations audit period 23 August 2022 to 14 September 2023 (site inspection date) and construction period preceding operation of the site.

RPS noted good environmental management practices occurring at Redirect Recycling Wetherill Park. reDirect's compliance management consists of daily site inspection checklists, inspection of incoming loads and staff training. Overall, reDirect's general environmental management was commended. Appropriate shed layout, bunding and storage of materials, regular cleaning of the shed floor and other environmental management processes contribute to effective minimisation of the development's environmental impacts. The IEA concluded that the Development was undertaken generally in accordance with SSD 7016, the EIS and RTS, development layout plans and drawings, management and mitigation measures, and documents and drawings of the Existing Development.

There were 2 non-compliances (items) with 2 associated corrective actions raised. Corrective actions associated with Condition A27 have been completed by reDirect and required the provision of existing dilapidation to DPHI. Corrective actions associated with Condition B14 will not be triggered until further construction is planned and/or determined, due to the nature of specific detail required to be incorporated into the Construction and Demolition Waste Management Plan.

The IEA Report was submitted to DPIE on 17 October 2023.

In accordance with SSD 7401 condition C13 the next IEA is scheduled for August 2026.

7 Environmental Incidents & Non-compliances

Environmental incidents are managed through reDirect's Pollution Incident Response Management Plan (PIRMP) and are logged in DataStation, reDirect's incident management system. Each incident report details the issue, the corrective and preventative actions taken, and the responsibilities and timing for completion of the actions. The report also includes any additional comments relevant to the incident and the completion date of corrective actions.

7.1 Incidents

A pollution incident that requires notification is defined in section 147 of the Protection of the Environment Operations Act 1997 as:

(a) Harm to the environment is material if:
   i. It involves actual of potential harm to the health or safety of human beings or the ecosystems that is not trivial, or
   ii. If results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations),
   and
(b) Loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

During this reporting period, there were no reportable environmental pollution incidents at the reDirect facility.

7.2 Non-conformances

reDirect Recycling have not been issued with any non-conformance or breach of licence correspondence from NSW DPHI or NSW EPA, respectively. Additionally, reDirect have not determined any non-compliances regarding operation of the site during the reporting period.

8 Activities Proposed for the next Annual Review Period

reDirect will endeavour to carry out the activities listed in Table 14 during the 2024/25 reporting period to assist with improving the environmental performance of the existing development and the project.

Table 15 Proposed activities for 2023/2024 reporting period

Ongoing implementation of Environmental Management Plans for the existing development and the project.
Complete installation of new hydro tip controls on top tier of the site.
Continue erosion and sediment control inspections and rectification works as necessary to manage stormwater discharge.
Update current operational management plans to reflect recommendations from findings of the annual review and any relevant monitoring results.

APPENDICIES

Appendix A – Annual Surface Water and Baseline Groundwater Condition Report

ReDirect Resource Recovery Facility, 24 Davis Road,
Wetherill Park, NSW

24 September 2024

Annual Surface Water and Baseline Groundwater Condition Report – 2024

Document Information

Annual Surface Water and Baseline Groundwater Condition Report – 2024,
24 Davis Road, Wetherill Park, NSW

Prepared by:

Senversa Pty Ltd

ABN: 89 132 231 380
Level 24, 1 Market St, Sydney, NSW 2000
tel:+61 2 8252 0000
www.senversa.com.au

Prepared for:
ReDirect Recycling
2 Wella Way
Somersby, NSW

Revision	Date	Author	Reviewed	Approved	Detail
0	18 September 2024	Bec Chapple	Emma Walsh	Andrei Woinarski	Rev0
1	24 September 2024	Bec Chapple	Emma Walsh SITE CONTAMINATION SPECIALIST Financial Year 2024/2025 No. SC41028	Andrei Woinarski SITE CONTAMINATION SPECIALIST Financial Year 2023/2024 No. SC41082	Rev1

Project Manager: Bec Chapple

Project Director: Emma Walsh

Disclaimer and Limitations:

This document is confidential and has been prepared by Senversa for use only by its client and for the specific purpose described in our proposal which is subject to limitations. No party other than Senversa's client may rely on this document without the prior written consent of Senversa, and no responsibility is accepted for any damages suffered by any third party arising from decisions or actions based on this document. Matters of possible interest to third parties may not have been specifically addressed for the purposes of preparing this document and the use of professional judgement for the purposes of Senversa's work means that matters may have existed that would have been assessed differently on behalf of third parties.

Senversa prepared this document in a manner consistent with the level of care and skill ordinarily exercised by members of Senversa's profession practising in the same locality under similar circumstances at the time the services were performed.

Permission should be sought before any reference (written or otherwise) is made public that identifies any people, person, address or location named within or involved in the preparation of this report. Senversa requires that this document be considered only in its entirety and reserves the right to amend this report if further information becomes available. This document is issued subject to the technical principles, limitations and assumptions provided herein in **Section 5.0**.

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 (Senversa) was engaged by reDirect Recycling Pty Ltd (reDirect) to conduct four biannual groundwater and surface water monitoring events (WME), along with associated reporting, over a two-year period at the reDirect Resource Recovery Facility located at 24 Davis Road, Wetherill Park, New South Wales (NSW) (the site).

The Water Management Plan (WMP) for the site (Senversa, 2022. *Water Management Plan, reDirect Resource Recovery Facility – 24 Davis Road, Wetherill Park, NSW*) outlines the initial requirement for six-monthly (bi-annual) monitoring of surface water and groundwater across and under the site for a two-year period following commencement of operations (August 2022).

This report documents the surface water monitoring conducted in February and July 2024, as well as the baseline groundwater conditions established over a two-year period from February 2023 to July 2024.

Objectives

The objectives of surface water and groundwater monitoring were to:

- Comply with the requirements of the WMP.
- Verify whether surface water/stormwater controls are adequately maintained and performing to meet the performance targets set out in the State Significant Development (SSD) Conditions of Approval (COA) and Fairfield City Council (FCC) (2017) *Stormwater Management Policy*.
- Assess surface water/stormwater quality with respect to the conditions of the site's environmental protection licence (EPL 21092).
- Assess geochemical parameters and target analytes in groundwater to form a baseline characterisation of the groundwater on site.

Scope of Work

The scope of work was in accordance with the WMP and included the following:

- Ongoing inspections by reDirect of the site areas outside of the covered and controlled processing areas (e.g. driveway, car park area, ramp) and all surface water sampling points and subsurface drains.
- Six-monthly (following a rainfall event) sampling and analysis of two surface water sampling points on-site (SW1 in the sand filter and SW2 in the Ecoceptor outflow sampling point).
- Six-monthly gauging, sampling and analysis of five on-site groundwater monitoring wells (MW1, MW2, MW3, MW4 and MW6).
- Preparation of this report.

Conclusions

Based on the available data and with respect to the objectives, the following conclusions are made:

Compliance with WMP:

Surface water monitoring was conducted consistent with requirements in the WMP during 2024.

Groundwater monitoring was generally conducted consistent with requirements in the WMP during 2023 and 2024, with no material deviations that were considered to impact the outcomes of the assessment.

Ensure surface water/stormwater controls are adequately maintained and performing to meet the performance targets set out in the SSD COA and FCC (2017):

No repairs were identified to be required. The quarterly inspections reported that there were no outstanding factors that needed addressing during the monitoring period.

Through comparison of analytical results at SW1 (untreated stormwater) vs SW2 (treated stormwater), the stormwater treatment train met the stormwater pollutant reduction targets outlined in FCC (2017) for total suspended solids (TSS), total phosphorus (TP) and total nitrogen (TN).

Assess surface water/stormwater quality with respect to Condition L1.1 of EPL 21092:

During the 2024 stormwater monitoring events:

- Concentrations of all analytes tested in surface water were reported below the adopted health-based assessment criteria.
- Concentrations of copper, zinc and nutrients were reported above the conservative ecological screening criteria at the Ecoceptor discharge point (SW2), indicative of the quality of stormwater being discharged from site. However, given the low concentrations reported (within the range of expected concentrations provided in literature of discharge from industrial sites), the intermittent nature of stormwater flows (rainfall dependent), mixing with downstream stormwater discharges and the distance to the nearest ecological receptor (1.5 kilometres), this is not considered to pose an unacceptable risk to the receptor or constitute a pollution event.

Assess geochemical parameters and target analytes in groundwater to form a baseline characterisation of the groundwater on site.

During the 2023 – 2024 WMEs:

- Baseline groundwater conditions were established, which can be used for assessing potential impacts to groundwater from operations at the site in the future.
- The laboratory reported either low concentrations, or concentrations below the laboratory limit of reporting, for benzene, toluene, ethylbenzene and xylene (BTEX), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH) and phenols, which are the primary contaminants associated with the historical use of the site as an asphalt batching plant.
- Concentrations of analytes tested in groundwater were below the adopted health-based assessment criteria, with the exception of manganese and nickel, which are considered indicative of regional groundwater conditions.
- Concentrations of chromium, copper, manganese, nickel and zinc were reported above the conservative ecological screening criteria. Metal concentrations were generally highest at MW3, which may be indicative of the quality of groundwater migrating onto the site from the neighbouring property to the west and/or regional groundwater conditions. The potential risk to ecological receptors is considered low given the distance to the nearest receptor and the low hydraulic conductivity of the groundwater.

No incidents were reported that may have resulted in an impact to groundwater.

Recommendations

On the basis of the results from this investigation, Senversa recommends the following:

- reDirect undertake scheduled maintenance on the site's stormwater treatment train, including the sand filter detention pit and Ecoceptor, to remove possible sediment build-up that may be causing zinc concentrations to increase through the treatment process.
- Per the WMP, the following monitoring should continue:
    - Ongoing weekly, quarterly and biannual environmental inspections and maintenance of the stormwater system by reDirect in accordance with the site's operational environmental management plan (OEMP).
    - Annual surface water sampling (per Table 4.2 of the WMP) from both SW1 and SW2 for the following analytes: pH, TSS, TP, TN and copper & zinc.
- Although the WMP outlined that annual groundwater monitoring be conducted for three years post completion of baseline monitoring, Senversa recommends that this is no longer required. Baseline groundwater monitoring commenced at the same time as commencement of operations at the site and no detrimental statistical trends, considered to be associated with site operations, have been noted in groundwater quality during this time. It is considered unlikley that additional changes in groundwater quality would be noted after a further one year of groundwater monitoring given the sealed nature of the operational portion of the site, the low hydraulic conductivity of the underlying aquifer and adherence to the Applicant's Management and Mitigation Measures that form Appendix B of the Development Consent. Further triggers, in accordance with Table 5.2 of the WMP, for additional groundwater monitoring should include if additional processes commence at the site (e.g. food and garden organics [FGO], food and liquid depackaging [FLD] or other trackable liquid wastes), if a potentially contaminating substance is to be stored or used/processed on the site, or a major incident occurs at the site (e.g. spill or leak of liquid substance/leachate, fire, etc). A review of the requirement for groundwater monitoring should be conducted every three years and when additional processes commence at the site.
- The potential risk to intrusive maintenance workers from elevated concentrations of manganese and nickel in the groundwater is considered to be low, given that exposure is unlikely due to no identified extraction/use and the average depth to water exceeds 2 metres below ground level (m bgl). However, it may be prudent to reduce potential risks during any deep intrusive works via minimising contact with groundwater and implementing good hygiene practices. These potential risks and management controls should be documented in safe work method statements (SWMS).
- Nutrient concentrations should no longer be compared against the overly conservative ANZECC & ARMCANZ (2000)[1] physical stressor trigger levels. Reductions in nutrient levels during stormwater treatment should continue to be monitored in accordance with FCC (2017).

---

[1] ANZECC & ARMCANZ (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Council of Australia and New Zealand.

Contents

Tables in Text

Appendices

List of Acronyms

Acronym	Definition
ADWG	Australian Drinking Water Guidelines
ALS	Australian Laboratory Services
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines
ARMCANZ	Agriculture and Resource Council of Australia and New Zealand
ASC	Assessment of Site Contamination
BOM	Bureau of Meteorology
BTEX	Benzene, toluene, ethylbenzene, xylenes
COA	Conditions of approval
CoPC	Contaminant of potential concern
DGV	Default guideline value
DO	Dissolved oxygen
DQI	Data Quality Indicator
DQO	Data Quality Objective
EC	Electrical conductivity
EPA	Environment Protection Authority (NSW)
EPL	Environmental Protection Licence
FCC	Fairfield City Council
FGO	Food and garden organics
FLD	Food and liquid depackaging
HDPE	High-density polyethylene
HSL	Health screening level
km	Kilometre
LOR	Limit of reporting
m	Metres
m AHD	Metres Australian Height Datum
m bgl	Metres below ground level
m btoc	Metres below top of casing
mg/L	Milligrams per litre

Acronym	Definition
MW	Monitoring well
NAPL	Non-aqueous phase liquid
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NSW	New South Wales
OEMP	Operational Environmental Management Plan
PAH	Polycyclic aromatic hydrocarbons
PCR	Primary contact recreation
POEO Act	*Protection of the Environment Operations Act 1997*
QA	Quality assurance
QC	Quality control
RPD	Relative percentage difference
SSD	State Significant Development
SWL	Standing water level
TDS	Total dissolved solids
TSS	Total suspended solids
TKN	Total kjeldahl nitrogen
TN	Total nitrogen
TON	Total organic nitrogen
TP	Total phosphorus
TRH	Total recoverable hydrocarbons
µg/L	Micrograms per litre
WME	Water Monitoring Event
WMP	Water Management Plan

1.0 Introduction and Objectives

Senversa Pty Ltd (Senversa) was engaged by reDirect Recycling Pty Ltd (reDirect) to conduct four biannual (six-monthly) groundwater and surface water monitoring events (WME), along with associated reporting, over a two-year period at the reDirect Resource Recovery Facility located at 24 Davis Road, Wetherill Park, New South Wales (NSW) (the site). The site location and layout are presented on **Figure 1**.

Senversa (2023)[2] documented the surface water monitoring conducted in February and August 2023. This report documents the surface water monitoring conducted in February and July 2024, as well as the baseline groundwater conditions established over the two-year period from February 2023 to July 2024.

1.1 Background

A Water Management Plan (WMP) has previously been prepared for the site[3] and is currently being implemented in accordance with the site's operational environmental protection licence (EPL) 21092, issued by the NSW Environment Protection Authority (EPA). The facility commenced operation under EPL 21092 in August 2022.

The WMP outlines the initial requirement for six-monthly (bi-annual) monitoring of surface water and groundwater across and under the site for a two-year period following commencement of operations. The requirements for subsequent on-going monitoring will be determined based on the results from the initial two-year period.

The purpose of the two-year period of surface water monitoring was to assess the quality of stormwater collected on-site prior to treatment, as well as being discharged to the Council stormwater system, to assess whether the stormwater controls across the site are meeting their performance targets. The purpose of the groundwater monitoring was to establish baseline groundwater conditions, which may be used to assess whether there are site-related operational impacts to groundwater quality in the future.

The existing monitoring network comprises five groundwater monitoring wells and two surface water sampling locations, as defined in the WMP, and shown on **Figure 2**.

The WMP requires a factual surface water and baseline groundwater condition report after the initial two-year monitoring period, which is this report.

1.2 Objectives

The objectives of surface water and groundwater monitoring were to:

- Comply with the requirements of the WMP.
- Verify whether surface water/stormwater controls are adequately maintained and performing to meet the performance targets set out in the State Significant Development (SSD) Conditions of Approval (COA) and Fairfield City Council (FCC) (2017) *Stormwater Management Policy*.
- Assess surface water/stormwater quality with respect to Condition L1.1 of EPL 21092.
- Assess geochemical parameters and target analytes in groundwater to form a baseline characterisation of the groundwater on site.

---

[2] Senversa (2023). *Surface Water Monitoring Report – Annual 2023, ReDirect Resource Recovery Facility, 24 Davis Road, Wetherill Park, NSW*. 21 September 2023.

[3] Senversa (2022). *Water Management Plan, reDirect Resource Recovery Facility – 24 Davis Road, Wetherill Park, NSW*. 5 April 2022.

1.3 Scope of Work

The scope of work was in accordance with the WMP and included the following:

- Ongoing inspections (since September 2023) by reDirect of the site areas outside of the covered and controlled processing areas (e.g. driveway, car park area, ramp) and all surface water sampling points and subsurface drains.
- Six-monthly (following a rainfall event) sampling and analysis of two surface water sampling points on-site (SW1 in the sand filter and SW2 in the Ecoceptor outflow sampling point) (since February 2024).
- Six-monthly gauging, sampling and analysis of five on-site groundwater monitoring wells (MW1, MW2, MW3, MW4 and MW6) (since February 2023).
- Preparation of this report.

1.4 Deviations from WMP

There were no material deviations from the surface water management plan requirements in the WMP.

The deviations from the groundwater management plan requirements in the WMP include the following:

- Groundwater monitoring well MW5 was lost prior to the February 2023 WME (the first of the four biannual WMEs). Gravel fill had been imported into the area as part of construction works post installation of the monitoring well, was compacted and covered MW5. ReDirect and Senversa tried several times to locate the monitoring well, including using a metal detector, but efforts were unsuccessful. Senversa concluded that this monitoring well was not critical to establishment of baseline groundwater conditions, as it was located in the centre of the site. Should future groundwater monitoring indicate that concentrations of contaminants of potential concern (CoPC) migrating off-site (to the south) have increased, then reDirect should consider installing a replacement monitoring well in the vicinity of MW5 to assist in identification and delineation of potential impacts.
- Groundwater geochemical parameters were not collected from groundwater monitoring well MW6 in the July 2024 WME. There was not enough volume of the groundwater sample (collected via Hydrasleeve®) for laboratory analysis and field measurement of geochemical parameters, therefore the laboratory analysis was prioritised. This is not considered to impact on the establishment of the baseline groundwater quality and conditions at this location or across the site, since three measurements of geochemical parameters were collected at this location during the two year period and geochemical parameters were measured at the other wells in the groundwater monitoring well network during the July 2024 WME.

2.0 Monitoring Rational and Methodology

2.1 Monitoring Locations

Monitoring locations included the following, as shown on **Figure 2**:

- General site areas outside of covered and controlled processing areas (e.g. driveway, car park area, ramp) (inspection only by reDirect).
- Two surface water locations:
  - SW1 – Sand filter bed inflow sampling point (to assess quality of surface water across the site prior to treatment).
  - SW2 – Ecoceptor outflow sampling point (to assess quality of surface water across the site following treatment and prior to discharge from site).
- Five groundwater monitoring wells:
  - MW1 – Hydraulically down-gradient of the stormwater treatment sand filter box, representative of groundwater likely migrating off-site to the south.
  - MW2 – Hydraulically down-gradient of the Ecoceptor, also representative of groundwater likely migrating off-site to the south.
  - MW3 – Western site boundary, hydraulically down-gradient of neighbouring property.
  - MW4 – Hydraulically down-gradient of the drill mud processing facility on eastern boundary.
  - MW6 – Hydraulically up-gradient monitoring well that captures the quality of background groundwater migrating onto the site from the north.

2.2 Sampling Methodology

The inspection, surface water and groundwater assessment methodology are summarised below.

Table 2-1: Inspection, Surface Water and Groundwater Monitoring Methodology

Activity	Details
Inspections (since Senversa, 2023)	Each week, reDirect was responsible for conducting a site inspection in which they observed the general site areas outside of covered and controlled processing areas (e.g. driveway, car park area, ramp). These records are presented in **Appendix A** A quarterly inspection of all surface water sampling points and subsurface drain pits was conducted in March 2024 and June 2024. This included the following methodologies: • Removal of the grate and inspection of the internal walls and base. • Removal of any collected sediment, debris, litter and vegetation • Inspection and ensuring the grate was clear following any removal of objects. • Ensuring there was a flush placement of the grate upon refitment. • Drainage structures were inspected noting any dilapidation, with repairs been carried out if necessary. • Rainwater tanks were checked for evidence of litter and pests and the structural integrity of the tank was assessed. • The sediment chamber for the Ecoceptor was checked and cleaned, with any damages repaired. These records are also presented in **Appendix A.**

Activity	Details
Surface Water Sampling (since Senversa, 2023)	Surface water sampling commenced after a period of rainfall, to ensure there was enough water to sample from the sampling locations. Rainfall data was monitored prior to each surface water sampling event. The rainfall data was collected from the Australian Bureau of Meteorology (BOM), measured from Prospect Reservoir (station 067019) 1 kilometre (km) north of the site. Surface water sampling was completed on the following dates: • 7 February 2024. • 9 July 2024. Laboratory prepared and supplied bottles/vials were filled directly from the sampling location using an extendable sampling pole. A sub-sample was filtered using a 0.45 µm filter in the field prior to placing into sample container for dissolved metals analysis. Vials and bottles were filled to minimise headspace and placed into an insulated cooler containing bagged ice. A separate aliquot of water was collected for field measurement of general water quality parameters[4]. A new pair of nitrile gloves were worn for each sample collection event. Sampling field records are presented in Error! Reference source not found.. Calibration certificates for the equipment used during the field program are presented in **Appendix C**.
Monitoring Well Gauging	The groundwater standing water level (SWL) was measured in the monitoring wells (MW1, MW2, MW3, MW4 and MW6) using a calibrated electronic water/oil interface probe. Groundwater gauging records are presented in **Table 1**, with field notes included in **Appendix B** and calibration certificates presented in **Appendix C**.
Groundwater Sampling	Groundwater samples were collected from monitoring wells utilising no-purge high-density polyethylene (HDPE) HydraSleeves®. The HydraSleeves® were placed a minimum of 1 metre (m) below the measured SWL and left *in-situ* for a minimum of 24-hrs prior to sample collection. During sampling, collected groundwater was transferred from the HydraSleeve® directly into laboratory supplied sample containers. Geochemical parameters were measured *ex-situ* in the field using a calibrated water quality meter. The geochemical water quality data are presented in **Table 2,** with field notes included in **Appendix B** and calibration certificates in **Appendix C**.
Sample Analytical Schedule	Samples were analysed at laboratories by methods endorsed by the National Association of Testing Authorities (NATA), including: • ALS Environmental (ALS): analysis of primary surface water samples. • Envirolab: Analysis of February 2023 inter-laboratory duplicate sample. • Eurofins: Analysis of August 2023, February 2024 and August 2024 interlaboratory duplicate sample. Surface Water Surface water samples were analysed for constituents required by the WMP: total dissolved solids (TDS), total suspended solids (TSS), total nitrogen (TN), total phosphorus (TP), dissolved metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc, iron and manganese), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH) and phenols. Groundwater Groundwater samples were analysed for constituents required by the WMP: Ammonia (as N), nitrate, TN, TP, dissolved metals (same as for surface water), TRH, BTEX[5] and PAH.

---

[4] General water quality parameters including: pH, electrical conductivity (EC), dissolved oxygen (DO) and redox potential.

[5] Benzene, toluene, ethylbenzene and xylenes.

Activity	Details
Quality assurance and quality control	Data quality assurance (QA) and quality control (QC) procedures consistent with the guidance in the WMP were implemented (refer **Appendix D**) including: • Field QA procedures: Inspections were conducted by suitably experienced persons familiar with the site operations; water sampling was conducted by suitable trained and experienced persons; dedicated sampling equipment was used; field and equipment calibration records were retained. • Field QC samples: The following QC samples were analysed: ▪ One intra-laboratory duplicate sample per WME. ▪ One inter-laboratory duplicate sample per WME. ▪ One rinsate sample per WME. ▪ One trip-blank was analysed in the February 2023 and August 2023 WMEs and two were analysed in each of the February 2024 and July 2024 WMEs. ▪ One trip-spike was analysed in February 2023 and August 2023 WMEs and two were analysed in each of the February 2024 and July 2024 WMEs. • Laboratory QA/QC procedures and controls were implemented – refer **Appendix D**. The data validation process involved checking both the analytical procedure compliance, as well as the accuracy and precision of the sampling methods used throughout the sampling program (refer **Appendix D**).

2.3 Water Quality Assessment Criteria

Condition L1 of the EPL states that the licensee must comply with section 120 of the *Protection of the Environment Operations Act 1997 (*POEO Act), which prohibits the pollution of waters. The below sub-sections outline the adopted assessment criteria for surface water and groundwater to assess whether pollution of waters may have occurred.

2.3.1 Surface Water Trigger Levels and Action Responses

Stormwater trigger levels and action responses are provided in Section 4.3.5 of the WMP. Most of the monitoring tasks and maintenance actions relate to the stormwater network and devices, however the monitoring item related to stormwater quality, which informs the objectives of the stormwater monitoring program, is reproduced in **Table 2-2** below.

Table 2-2: Stormwater Quality Triggers and Action Responses

Aspect	Trigger	Purpose of Monitoring	Action
Exceedance of water quality objectives	Condition L1 of the EPL states that the licensee must comply with section 120 of the POEO Act, which prohibits the pollution of waters. Stormwater quality should also meet FCC stormwater quality, discharge requirements or approval conditions. In the absence of any EPL or FCC criteria, site-specific risk-based screening criteria should be adopted from NSW EPA made or approved guidance appropriate for the commercial/industrial land use and heavily disturbed receiving environment. These include: ANZG (2018) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* for heavily disturbed environments; and, primary contact recreation (PCR) guidelines adopted from National Health and Medical Research Council (NHMRC) (2011), *Australian Drinking Water Guidelines* and NHMRC (2008) *Guidelines for Managing Risks in Recreational Water*.	Verify soil and erosion, and stormwater, management controls in SSD-7401 are performing as designed.	Review the above triggers and actions.

2.3.2 Surface Water Quality Assessment Criteria

In the absence of any EPL or FCC criteria, the WMP adopted site-specific risk-based screening criteria from NSW EPA made or approved guidance appropriate for the commercial/industrial land use and heavily disturbed receiving environment. These include (refer **Table 3** for criteria values):

- **Health risk screening**: Direct contact exposure based on PCR guidelines adopted from the Australian Drinking Water Guidelines (ADWG, 2022)[6] and NHMRC (2008) *Guidelines for Managing Risks in Recreational Water* for recreational exposure. This is also conservative for incidental exposure to workers.
- **Ecological risk screening**: ANZG[7] (2018) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* for heavily disturbed environments. Surface water that discharges the site may migrate and discharge into Prospect Creek (approximately 1.5 km to the east of the site), which is the nearest surface water body downstream of the site, though the ultimate receiving environment is the George's River and Botany Bay (marine). The WMP indicates previous studies found that the local receiving waterways are heavily disturbed. The relevant ecological guidelines for toxicants, are therefore, the freshwater default guidelines values (DGVs) for heavily disturbed environments from ANZG (2018).
  Given that ANZG (2018) does not specify DGVs for nutrients, the physical stressor trigger values from ANZECC & ARMCANZ (2000) have conservatively been adopted, however these do not take into consideration the surrounding land use. Given the setting in an urban environment, consideration is given to concentrations in stormwater runoff in urban or commercial/ industrial areas in east coast Australia reported by Drapper et al (2022) and Fletcher et al (2004), which are more applicable to the site setting.
- **Aesthetic impacts**: e.g. no gross aesthetic impacts such as non-aqueous phase liquids (NAPL).

2.3.3 Groundwater Trigger Levels and Action Responses

Trigger levels and action responses applied to the groundwater monitoring program are provided in Section 5.5 of the WMP and repeated in **Table 2-3** below.

Table 2-3 Groundwater Management Plan Trigger Level and Action Responses

Aspect	Trigger	Actions
Groundwater	Concentrations of key indicator analytes outlined in the WMP exceed performance criteria and do not show a stable or decreasing trend.	Consider re-sampling or increased sampling frequency to confirm results. Assess possible sources of contamination – i.e. change in site operations, change in neighbouring site operations or chemical spills. Assess the significance of associated environmental risk – where a potentially unacceptable risk is identified, a suitably qualified and experienced professional should assess whether the monitoring program is adequate to assess potential contamination risks, and recommend program changes (if necessary) (e.g., additional sampling locations, more frequent monitoring or different CoPC). Implement the amended monitoring program. Develop and implement management/remedial actions if necessary.

---

[6] NHMRC (2011). *Australian Drinking Water Guidelines*, updated January 2022. National Health and Medical Research Council.

[7] Australian and New Zealand Governments and Australian state and territory governments.

Aspect	Trigger	Actions
	Concentrations of key indicator analytes in the WMP that are **less than** the performance criteria and show statistically significant stable or decreasing trend over a minimum of three events.	Assessment to determine the residual environmental risk and review the monitoring program by a suitable qualified and experienced professional. If monitoring results are consistently decreasing to levels below the performance guidelines outlined in section 5.4 of the WMP and the residual environmental risk from ongoing primary sources is considered low by a suitably qualified and experienced professional, the groundwater monitoring program may end.
	Damaged or lost wells	Assess whether ongoing monitoring at the location is necessary. If required, repair or re-install the well.
Site Activities	Incident (e.g. spill or release of a material or liquid) that could result in impact to surface or groundwater.	Assess whether monitoring program is adequate to assess potential impact associated with the incident. This assessment should be undertaken by a suitable qualified and experienced professional and documented in a report with clear conclusions and recommendations for amendments (if necessary). Implement program changes – these may include increased monitoring frequency, inclusion of additional monitoring locations, installation and monitoring of additional wells, broader analytical suite to assess the chemicals of concern.
	Change in nature or management of imported materials that has the potential to result in a significantly increased risk of impact from leachate. Including commencement of Stage 2 operations.	

2.3.4 Groundwater Assessment Criteria

Assessment of groundwater quality in the future will principally be via comparison against baseline and site background conditions, which have been established in this report. **Table 2-4** below summarises the groundwater quality criteria (or performance criteria) that are adopted in the WMP.

Table 2-4: Groundwater Assessment Criteria

Receptor	Adopted Assessment Criteria
Change to baseline / background conditions	No statistically significant increasing trend or 20% increase over baseline / background concentrations or field parameters.
Human Health	Relevant criteria for the commercial/industrial land use setting have been adopted as a screening levels. This includes: • Direct contact criteria (same as for surface water, based on guidelines adopted from ADWG (2022) and NHMRC (2008)) have been considered due to the relatively shallow depth to groundwater in some locations, which may be encountered during intrusive (sub-surface) construction/maintenance works. The presence of concrete and asphalt hardstand however indicates that groundwater will be predominantly inaccessible to humans. • Health Screening Level for commercial/industrial land use (HSL-D) in the ASC NEPM[8] for assessment of vapour intrusion risks. Concentrations above the HSLs may pose a risk to users of enclosed buildings. • No gross aesthetic impacts such as NAPL. • Drinking water guidelines will not be considered, given the site geology, land use and provision of a reticulated drinking water supply.
Ecological	Relevant criteria include: • ANZG (2018) freshwater DGVs for heavily disturbed environments , on the basis that groundwater may migrate and discharge into Prospect Creek.

---

[8] NEPC (2013). *National Environment Protection (Assessment of Site Contamination) Amendment Measure (No.1)*. National Environment Protection Council.

ANZG (2018) notes that exceedance of a DGV does not necessarily imply that there is an inherent risk, rather that further assessment and monitoring may be required prior to implementing appropriate management actions. These adopted assessment criteria should be used for screening purposes to trigger further assessment, rather than to directly assess the level of risk to any identified receptors.

3.0 Results

3.1 Site Inspections

The following key observations were made by reDirect during quarterly inspections of the surface water sampling points and subsurface drain pits in March 2024 and June 2024:

- The grates were cleaned when observations indicated that sediment was present and debris was removed when necessary.
- The sediment chamber of the Ecoceptor was checked during each quarterly observation, with no further action required on each occasion.
- No repairs were required for the surface water and stormwater drain structures.
- The rainwater tank was clear of pests and debris on each occasion, with no repairs required.

3.2 Rainfall Prior to Sampling Events

The surface water sampling events were targeted to follow a rainfall event to maximise the potential for a sufficient volume of water (for sampling and analysis) to have been treated and discharged from the Ecoceptor. The following rainfall data was collected from the BOM Prospect Reservoir (station 067019). **Table 3-1** outlines the rainfall that occurred in the 3-day period prior to each monitoring event.

Table 3-1: Rainfall prior to surface water monitoring events

Date	24-hour Rainfall (including day of sampling)	3-Day Rainfall (including day of sampling)
7 February 2024	22 millimetres (mm)	22 mm
9 July 2024	2 mm	6 mm

3.3 Surface Water

3.3.1 Observations and Geochemical Parameters

The field-measured surface water geochemical parameters for the sampling events are presented in the table below.

Table 3-2 Surface water observations and geochemical parameters

Location	Event	Dissolved Oxygen (mg/L)	Electrical Conductivity (µs/cm)	pH	Redox (Eh) (mV)	Temperature (°C)	Observations
SW1 (untreated water)	February 2024	3.07	574	7.51	307	23.9	Colourless, no odour, no sheen, suspended sediments
	July 2024	1.06	334	7.08	243	13.6	Light grey brown, no odour, no sheen, moderately turbid

Location	Event	Dissolved Oxygen (mg/L)	Electrical Conductivity (µs/cm)	pH	Redox (Eh) (mV)	Temperature (°C)	Observations
SW2 (treated water)	February 2024	4.19	656	7.70	286	25.0	Colourless, no odour, no sheen, suspended sediments
	July 2024	6.09	370	8.48	187	13.7	Light grey, no odour, no sheen, slightly turbid

Based on the above information, the following key observations were made:

- The DO of the treated water (SW2) was higher than the untreated water (SW1), likely due to the flow and agitation of the water through the stormwater treatment process. The stormwater being released from the site at the time of sampling (based on the results from SW2) was aerobic.
- The EC measurements at both SW1 and SW2 were indicative of freshwater. This indicates that the EC of the rain falling across the site had not been significantly altered by conditions at the site by the time the rain was discharged from the site (as stormwater).
- The measured pH was indicative of neutral to moderately alkaline conditions, which is within the adopted acceptable range.
- The measured Eh of SW1 and SW2 was indicative of slightly to moderately oxidising conditions.
- The range of measured temperatures is reflective of seasonal changes.
- The sampled untreated (SW1) and treated (SW2) stormwater did not have any visual / olfactory indicators of contamination.

3.3.2 Analytical Results

The surface water analytical results and screening against adopted assessment criteria are provided in **Table 3**. The laboratory analysis reports (**Appendix E**) contain the laboratory analytical results. The surface water exceedances of site criteria are also presented on **Figure 4** (attached).

A summary of exceedances of water quality objectives is provided in the table below.

Table 3-3 Surface Water Analytical Summary

Analyte / Value	Screening Criteria Exceedances			Comment
	Health-Risk	Ecological Risk	Aesthetics	
Heavy metals and metalloids	None identified	Heavy metal concentrations were reported at low levels, less than relevant screening criteria for highly disturbed environments, with the exceptions of: • Copper (at SW1 and SW2 in February 2024 and July 2024). • Zinc (at SW2 in July 2024).	-	Metal concentrations were generally less than or similar to relevant screening criteria for disturbed ecosystems consistent with the WMP. Reported copper concentrations were slightly elevated above ecological screening criteria at both SW1 (untreated) and SW2 (treated), indicating that the treatment train has not reduced copper concentrations in the stormwater. The reported zinc concentrations at SW2 in February 2024 and July 2024 were higher than reported in SW1. This scenario was also noted in August 2023. The cause for the increase in zinc concentrations is unclear, but may be related to the treatment train and should be reviewed. The average concentration of zinc in SW2 over the four sampling events in 2023 and 2024 (0.02 mg/L) was also above the ecological criterion.
Nutrients	None identified	No exceedances for toxicants. Exceedances of conservative physical stressor values for total oxidised nitrogen (as N), TN and TP at SW1 and SW2 in both February 2024 and July 2024.	-	Concentrations are similar to the median values for TN (1.7 mg/L) and TP (0.31 mg/L) in stormwater runoff in urban or commercial/ industrial areas in east coast Australia reported by Drapper et al (2022) and Fletcher et al (2004). TN concentrations are generally less than DGV (90% spp) for nitrate (as N) (5.6 mg/L) The concentrations of TN and TP were lower in SW2 (treated) than in SW1 (untreated). This is further discussed below.
Organic CoPC	None identified	Exceedance of TRH >C10-C16 fraction minus naphthalene (F2) at SW1 in February 2024.	None identified	BTEX, PAHs and phenols were not detected in water samples. TRH >C10-C16 fraction minus naphthalene (F2) exceeded the ecological criteria at SW1 in February 2024, but was reported below the laboratory limit of reporting (LOR) in SW2, indicating that the treatment train was effective in removing the petroleum contamination. The concentrations of TRH in both SW1 and SW2 were below the LOR in July 2024, potentially indicating that there may have been an unreported or undetected spill or leak of petroleum products during February 2024.
Physico-chemical Parameters	None identified	None identified	None identified	The TSS was almost two orders of magnitude greater in July 2024 compared to February 2024 at SW1, which may be related to the rainfall preceding both events. The concentrations reported in SW2 were lower (by at least one order of magnitude), indicating that the treatment train is effective in reducing the TSS concentration under a range of turbidity conditions.

3.3.3 Statistical Analysis

The minimum concentration, maximum concentration and mean concentrations of the main CoPCs is presented in the table below, with exceedances of the site assessment criteria outlined.

Table 3-4: Statistics for Surface Water Samples in 2023 and 2024.

Analyte (units)	**Criteria**			**Concentration Reported in 2023 and 2024 Monitoring Events**					
	Health	**Ecological**	**Physical Stressors**	**SW1**			**SW2**		
				Min	**Max**	**Average**	**Min**	**Max**	**Average**
TSS (mg/L)	-	-	-	**86**	**7,260**	**1,919**	**8**	**90**	**52**
Copper (mg/L)	*20*	0.0018	-	0.003	0.006	0.004	0.001	0.004	0.003
Zinc (mg/L)	*60*	0.015	-	<0.005	0.005	<0.005	<0.005	0.038	0.020
Total Oxidised Nitrogen (as N) (mg/L)	-	-	**0.04**	**0.32**	**0.68**	**0.44**	**0.28**	**0.62**	**0.48**
Total Nitrogen (as N) (mg/L)	-	-	**0.35**	**0.7**	**22.9**	**7.0**	**1.2**	**4.3**	**2.1**
Phosphorus (as P) (mg/L)	-	-	**0.025**	**0.06**	**6.68**	**1.80**	**0.03**	**0.63**	**0.24**
>C10-C16 Fraction minus naphthalene (F2) (µg/L)	*900*	440	-	<LOR	630	232	<LOR	<LOR	<LOR

Based on the statistics provided in **Table 3-4**, there are indications that concentrations of key parameters (TSS, TN and TP) are lower at SW2 (downstream of treatment train) than SW1 (upstream of system), which was also noted during the 2023 sampling events. The water, sediment and erosion controls in the WMP should continue to be followed to minimise migration of sediments and fines into the stormwater system.

3.4 Groundwater

3.4.1 Observations and Geochemical Parameters

The field-measured groundwater geochemical parameters for the sampling events are discussed in the table below.

Table 3-5: Geochemical Parameters of Groundwater

Parameter	Minimum	Maximum	Average	Comment
Depth to Groundwater (metres below top of casing – m btoc)	1.9	4.7	3.0	The depth to groundwater is generally shallower under the southern portion of the site compared to under the northern portion of the site. The top of well casing elevations have not been surveyed and therefore the standing water level (SWL) in m AHD[9] has not been able to be calculated. It is anticipated that groundwater flows in a south-easterly direction based on previous reports and local hydrogeological features – this is shown on **Figure 2**.
Dissolved Oxygen (mg/L)	0.0	6.3	2.0	The groundwater conditions have ranged from anoxic to moderately aerobic both spatially and temporally.
Electrical Conductivity (µS/cm)	1,362	34,645	19,099	The groundwater conditions ranged from fresh under the northern portion of the site (MW6) to saline under the southern portion of the site. A previous report prepared for the site[10] indicated that the high salinity of the groundwater is associated with the Bringelly Shales underlying the site.
Redox Potential	146	359	246	The groundwater conditions have ranged from mildly to moderate oxidising conditions both spatially and temporally.
pH	5.78	7.41	6.52	The pH of the groundwater was slightly acidic to neutral and within the adopted acceptable range.
Temperature	15.9	29.6	20.5	A regular seasonal pattern was observed with warmer temperatures in summer (February 2024) and cooler temperatures in winter (July 2024).

The variability noted above was also noted in Douglas Partners (2016).

3.4.2 Analytical Results

The groundwater sample analytical results and screening against adopted assessment criteria are provided in **Table 4**. The laboratory analysis reports (**Appendix E**) contain all analysis results. The groundwater exceedances of site criteria are also presented in **Figure 4** (attached).

---

[9] Metres Australian Height Datum

[10] Douglas Partners (2016). *Report on Groundwater Assessment, Proposed Resource Recovery & Recycling Centre, 24 Davis Road, Wetherill Park*. September 2016.

A piper plot has been generated (**Exhibit 3-1** below) to show the major ionic water constituents. The plot indicates that the hydrochemistry of the groundwater in MW6 is distinctly different from groundwater at the remaining monitoring wells, which are dominated by sodium chloride (which is also demonstrated through high EC). This may indicate that MW6 intersects a different aquifer to the remaining monitoring wells, which is supported by the following observations:

- The recharge of groundwater following purging (during well development) was noted to be higher in MW6 than in the other monitoring wells.
- The monitoring well screen at MW6 intersects a lens of sand above the natural clay, which was not observed in the other locations.

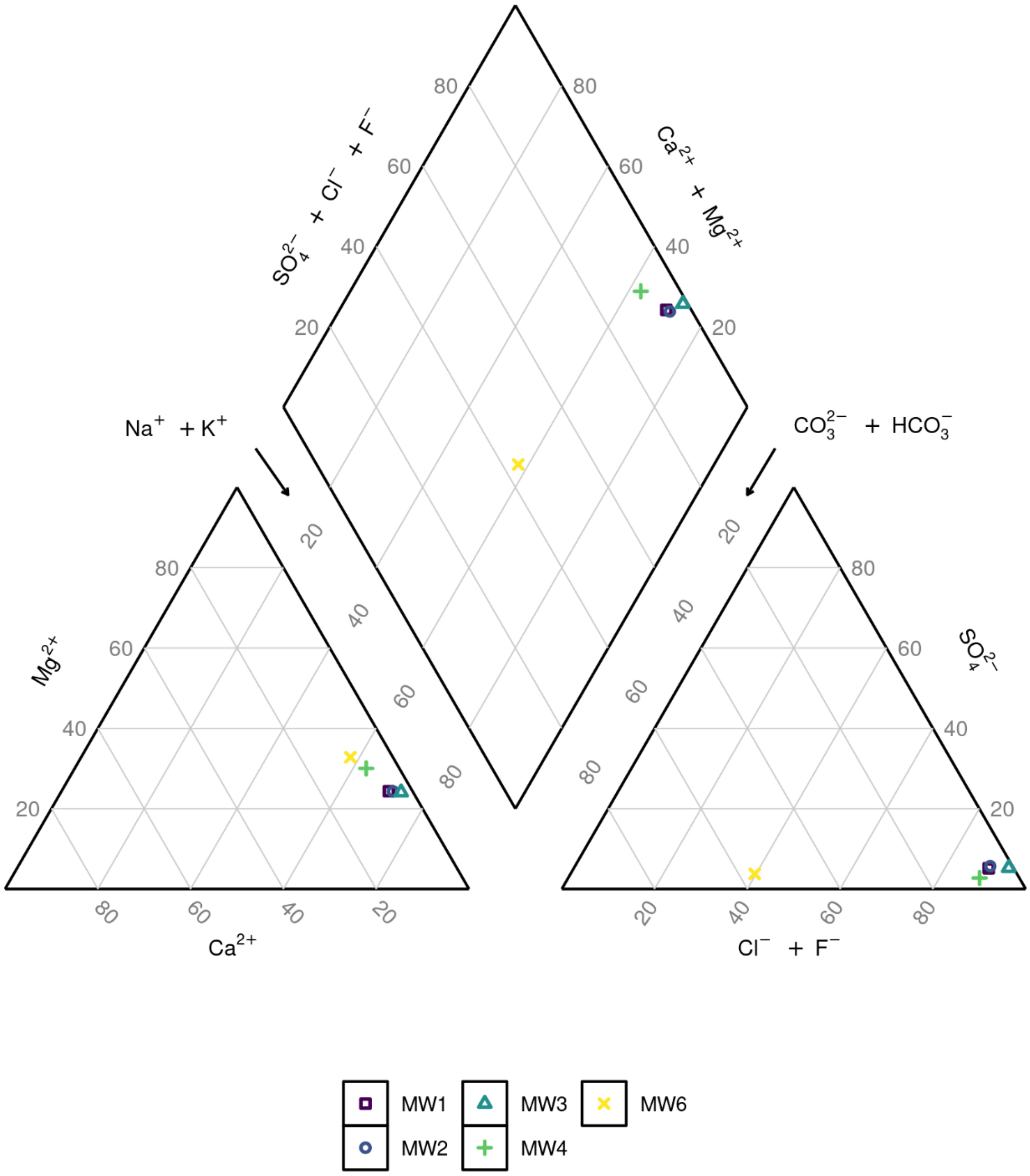


Exhibit 3-1: Piper Plot showing Hydrochemistry of Site Groundwater

A summary of exceedances of water quality objectives is provided in the table below.

Table 3-6 Groundwater Analytical Summary

Analyte / Value	Health-Risk	Ecological Risk	Comment
Heavy metals and metalloids	Manganese concentrations exceeded the recreation health assessment criteria in MW3 and MW4. The nickel concentration at MW3 also exceeded the recreation health assessment criteria in one sampling event (August 2023).	Metal and metalloid concentrations were reported at low levels less than relevant screening criteria for highly disturbed environments with the exceptions of: • Chromium. • Copper. • Manganese. • Nickel. • Zinc.	The manganese concentrations at MW3 and MW4 were consistently close to or slightly exceeded the adopted recreational health assessment criteria. The nickel concentration at MW3 was also consistently close to or marginally exceeded the recreation health assessment criteria. It is likely that the concentrations of these metals are elevated naturally and indicative of regional groundwater conditions. In addition, concentrations of chromium and zinc were highest at MW3 and may be indicative of groundwater migrating onto the site from the neighbouring property to the west. The lowest metal and metalloid concentrations were reported in MW6 in the northern, hydraulically up-gradient portion of the site. The potential risk to ecological receptors is considered low given the distance to the nearest receptor and the low hydraulic conductivity of the groundwater.
Nutrients	None identified	No exceedances for toxicants.	-
Organic CoPC	None identified	None identified	PAHs and phenols were not detected above the LOR in the groundwater samples. One sample (MW4 in February 2024) reported a very low concentration of toluene (below assessment criteria). All other BTEX concentrations were reported below the LOR in other locations and in other sampling events. Low concentrations of semi-volatile TRH (below assessment criteria) were reported in MW1 and MW3. The detections of toluene and TRH may be associated with the former use of the site as an asphalt batching plant.

3.4.3 Groundwater Baseline Conditions and Statistical Analysis

The analytical results for the groundwater samples are presented in **Table 4**, with exceedances of the adopted site assessment criteria displayed on **Figure 3**. **Table 3-7** below outlines the minimum, maximum and mean concentration of key CoPCs in each groundwater monitoring well during the four biannual sampling events, thus establishing the baseline groundwater conditions. Additional statistics are presented in **Appendix F**.

Table 3-7: Groundwater Statistical Analysis of Analytical Data

		Arsenic	Chromium	Copper	Manganese	Nickel	Zinc	Ammonia (as N)	Nitrate (as N)	BTEX	TRH (C6-C10)	TRH (>C10-C40)	PAH / Phenol
Criteria (mg/L)	**Eco.**	0.042	0.0033	0.0018	2.5	0.013	0.015	1.43	3.8	0.11[a]	0.44[b]	0.64[c]	-[d]
	Health	**0.1**	**0.5**	**20**	**5**	**0.2**	**60**	**-**	**110**	**0.01[a]**	**0.9[b]**	**0.9[c]**	**-[d]**
Well ID	**Statistic**												
MW1	**Min**	0.007	<0.001	<0.001	0.59	0.015	0.012	0.19	<0.01	<0.001	<0.02	<0.1	<LOR
	Max	0.012	<0.001	0.015	**4.84**	0.156	0.174	0.71	0.02	<0.001	<0.02	0.52	<LOR
	Mean	0.010	<0.001	0.005	2.15	0.058	0.062	0.47	0.01	<0.001	<0.02	0.2	<LOR
MW2	**Min**	0.004	<0.001	<0.001	0.96	0.005	<0.005	0.26	<0.01	<0.001	<0.02	<0.1	<LOR
	Max	0.008	<0.001	0.011	3.28	0.006	0.009	0.52	0.03	<0.001	<0.02	<0.1	<LOR
	Mean	0.005	<0.001	0.003	1.75	0.006	0.007	0.44	0.02	<0.001	<0.02	<0.1	<LOR
MW3	**Min**	0.002	<0.001	<0.010	**6.15**	0.191	0.122	0.22	<0.01	<0.001	<0.02	<0.1	<LOR
	Max	0.011	0.005	0.006	7.4	**0.207**	0.253	0.29	0.10	<0.001	<0.02	0.91	<LOR
	Mean	0.005	0.004	0.003	**6.8**	0.199	0.214	0.27	0.03	<0.001	<0.02	0.31	<LOR
MW4	**Min**	0.005	<0.001	<0.001	4.00	0.011	<0.005	0.28	<0.01	<0.001	<0.02	<0.1	<LOR
	Max	0.008	<0.001	0.005	**6.04**	0.021	0.006	0.34	0.01	0.002	<0.02	<0.1	<LOR
	Mean	0.007	<0.001	0.002	**5.13**	0.017	0.002	0.31	<0.01	<0.001	<0.02	<0.1	<LOR
MW6	**Min**	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.01	0.18	<0.001	<0.02	<0.1	<LOR
	Max	0.002	<0.001	0.003	0.225	0.002	0.006	0.09	1.93	<0.001	<0.02	<0.1	<LOR
	Mean	0.002	<0.001	0.001	0.81	0.001	0.002	0.03	1.19	<0.001	<0.02	<0.1	<LOR

---

[a] Most conservative assessment criteria for BTEX displayed. Table 4 presents the applicable criteria for each BTEX compound.

[b] Assessment criteria for TRH C6-C10 fraction minus BTEX (F1) displayed.

[c] Adopted assessment criteria for TRH >C34-C40 displayed. Table 4 presents the applicable criteria for each TRH fraction.

[d] Table 4 presents the adopted assessment criteria for each PAH/phenol compound, where available.

3.4.4 Contaminant Concentration Trends

Statistical evaluation of concentration trends and plots for key indicator analytes for available data from the baseline investigation (February 2023 to August 2024) are presented in **Appendix F** and summarised in **Table 3-8** below.

Table 3-8: Groundwater Concentration Trend Analysis Summary 2023 – 2024

Chemical Name / Well ID	Arsenic	Chromium	Copper	Manganese	Nickel	Zinc	Ammonia (as N)	Nitrate (as N)	BTEX	TRH (C6-C10)	TRH >C10-C40	Sum of PAH
MW1	↔	↔	-	↔	-	-	↓	-	↔	↔	-	↔
MW2	↔	↔	-	↑	↔	↔	↔	↔	↔	↔	↔	↔
MW3	↔	↔	↔	↑	↔	↔	↔	-	↔	↔	-	↔
MW4	↔	↔	-	↔	↓	↔	↓		↔	↔	↔	↔
MW6	↔	↔	↔	-	↔	↔	-	↔	↔	↔	↔	↔

Symbol	
↑	- increasing trend
↓	- decreasing trend
↔	- stable trend
-	- no trend
	- not enough data to get a trend analysis

Note: If all results were <LOR, the Mann-Kendall trend was listed as "Stable"

3.5 Data Quality Review

A review of the sampling and laboratory QA/QC data completed by Senversa is presented in **Appendix D**. The QA/QC review indicated that results are generally within the relevant data quality indicator acceptance criteria for the analyses conducted and that any identified non-conformances are unlikely to affect the suitability of the data set for the purposes of this investigation. The quality of the analytical data is considered reliable for the purpose of this investigation.

4.0 Conclusions and Recommendations

4.1 Conclusions

Based on the available data and with respect to the objectives, the following conclusions are made:

Compliance with WMP:

Surface water monitoring was conducted consistent with requirements in the WMP during 2024.

Groundwater monitoring was conducted consistent with requirements in the WMP during 2023 and 2024, with the following exceptions:

- Groundwater monitoring well MW5 could not be found prior to the February 2023 WME, nor afterwards despite several attempts to locate the well. This monitoring well was therefore not sampled in any of the four biannual sampling events.
- Groundwater geochemical parameters were not collected from groundwater monitoring well MW6 in the July 2024 WME due to an insufficient volume of groundwater sample obtained.

Ensure surface water/stormwater controls are adequately maintained and performing to meet the performance targets set out in the SSD COA and FCC (2017) Stormwater Management Policy:

No repairs were identified to be required. The quarterly inspections reported that there were no outstanding factors that needed addressing during the monitoring period.

Although TRH was reported in surface water sample SW1 in February 2024, reDirect had not reported any spills that had been left unattended during that period. The treatment train appeared to be effective in removing the TRH contamination, as the laboratory did not report any TRH above the LOR in the stormwater sample collected from the outflow of the Ecoceptor (SW2), which is indicative of the quality of stormwater being discharged from the site.

Through comparison of analytical results at SW1 (untreated stormwater) vs SW2 (treated stormwater), the stormwater treatment train was effective at reducing the following contaminants / pollutants, thus meeting the stormwater pollutant reduction targets outlined in FCC (2017):

- TSS concentrations were reduced by 91 – 99% (FCC target of 80%).
- TP concentrations were reduced by 70 – 91% (FCC target of 55%).
- TN concentrations were reduced by 43 – 81% (FCC target of 40%).

Assess surface water/stormwater quality with respect to Condition L1.1 of EPL 21092:

During the 2024 stormwater monitoring events:

- Concentrations of all analytes tested in surface water were reported below the adopted health-based assessment criteria.
- Concentrations of copper, zinc and nutrients were reported above the conservative ecological screening criteria at the Ecoceptor discharge point (SW2), indicative of the quality of stormwater being discharged from site. Given the intermittent nature of stormwater flows (rainfall dependent), mixing with downstream stormwater discharges and distance to the nearest ecological receptor (1.5 km), this is not considered to pose an unacceptable risk to the receptor or constitute a pollution event. In addition, the following is noted in regards to the concentrations reported:
    - Copper concentrations (0.004 mg/L) marginally exceeded the ANZG (2018) DGV (0.0018 mg/L). The concentrations are below the range provided in Fletcher et al (2004) for expected copper concentrations in stormwater from industrial land uses (0.02 – 0.3 mg/L during wet weather events).

  - Zinc concentrations in stormwater increased following treatment (reported up to 0.023 mg/L) and were slightly above the adopted ecological assessment criteria at the end of the treatment process (0.015 mg/L). The concentrations are below the range provided in Fletcher et al (2004) for expected zinc concentrations in stormwater from industrial land uses (0.1 – 1 mg/L during wet weather events).
  - Nutrients (total oxidised nitrogen, TN and TP) were an order of magnitude above the conservative ANZECC & ARMCANZ (2000) physical stressor trigger levels. These trigger levels are overly conservative for urban environments and are not cited in the more recent ANZG (2018) guidelines, so have been used here purely for screening purposes. The TN and TP concentrations were reduced following treatment, thus meeting the requirements of FCC (2017), and reported concentrations were also within the range provided in Fletcher et al (2004) for expected concentrations in stormwater from industrial land uses during wet weather events:
    - TN concentrations at SW2 (1.2 – 4.3 mg/L) were within the range of 0.7 – 6 mg/L in the literature.
    - TP concentrations at SW2 (0.03 – 0.63 mg/L) were within the range of 0.08 – 0.8 mg/L in the literature.

Assess geochemical parameters and target analytes in groundwater to form a baseline characterisation of the groundwater on site.

During the 2023 – 2024 monitoring events:

- Baseline groundwater conditions were established, which can be used for assessing potential impacts to groundwater from operations at the site in the future.
- The laboratory reported either low concentrations, or concentrations below the LOR, for BTEX, TRH, PAH and phenols, which are the primary contaminants associated with the historical use of the site as an asphalt batching plant.
- Concentrations of all analytes tested in groundwater were below the adopted health-based assessment criteria, with the following exceptions, which are considered indicative of regional groundwater conditions:
  - Manganese in MW3 and MW4; and
  - Nickel in MW3.
- Concentrations of chromium, copper, manganese, nickel and zinc were reported above the conservative ecological screening criteria. Metal concentrations were generally highest at MW3, which may be indicative of the quality of groundwater migrating onto the site from the neighbouring property to the west and/or regional groundwater quality. The potential risk to ecological receptors is considered low given the distance to the nearest receptor and the low hydraulic conductivity of the groundwater.

In relation to the groundwater trigger levels:

- The concentrations of the analytes that exceeded the assessment criteria in groundwater (chromium, copper, manganese, nickel and zinc) showed either no trend, a stable trend or a decreasing trend, with the exception of manganese at MW2 and MW3. Given that manganese concentrations are considered to be naturally elevated in this area, the increasing trend may be attributed to increased rainfall or standing water levels (SWLs) in the local area facilitating leaching of manganese from the natural soils, or another external factor not associated with site operations. No management or remedial actions are considered necessary.
- Concentrations of BTEX, TRH (C6-C10), PAHs and phenols were below the assessment criteria and showed a statistically significant stable trend, and therefore can be removed from the analytical program going forward.

- Although groundwater monitoring well MW5 was lost, Senversa concluded that this monitoring well was not critical to establishment of baseline groundwater conditions, as it was located in the centre of the site. Should future groundwater monitoring indicate that concentrations of contaminants of concern migrating off-site (to the south) have increased, then reDirect should consider installing a replacement monitoring well in the vicinity of MW5 to assist in identification and delineation of potential impacts.
- No incidents were reported that may have resulted in an impact to groundwater.

4.2 Recommendations

On the basis of the results from this investigation, Senversa recommends the following:

- reDirect undertake scheduled maintenance on the site's stormwater treatment train, including the sand filter detention pit and Ecoceptor, to remove possible sediment build-up that may be causing zinc concentrations to increase through the treatment process.
- Per the WMP, the following monitoring should continue:
  - Ongoing weekly, quarterly and biannual environmental inspections and maintenance of the stormwater system by reDirect in accordance with the site's operational environmental management plan (OEMP).
  - Annual surface water sampling (per Table 4.2 of the WMP) from both SW1 and SW2 for the following analytes:
    - pH.
    - TSS.
    - TP.
    - TN.
    - Copper and Zinc.
- Although the WMP outlined that annual groundwater monitoring be conducted for three years post completion of baseline monitoring, Senversa recommends that this is no longer required. Baseline groundwater monitoring commenced at the same time as commencement of operations at the site and no detrimental statistical trends, considered to be associated with site operations, have been noted in groundwater quality during this time. It is considered unlikely that additional changes in groundwater quality would be noted after a further one year of groundwater monitoring given the sealed nature of the operational portion of the site, the low hydraulic conductivity of the underlying aquifer and adherence to the Applicant's Management and Mitigation Measures that form Appendix B of the Development Consent. Further triggers, in accordance with Table 5.2 of the WMP, for additional groundwater monitoring should include if additional processes commence at the site (e.g. food and garden organics [FGO], food and liquid depackaging [FLD], or other trackable liquid waste), if a potentially contaminating substance is to be stored or used/processed on the site, or a major incident occurs at the site (e.g. spill or leak of liquid substance/leachate, fire, etc). A review of the requirement for groundwater monitoring should be conducted every three years and when additional processes commence at the site.
- The potential risk to intrusive maintenance workers from elevated concentrations of manganese and nickel in the groundwater is considered to be low, given that exposure is unlikely due to no identified extraction/use and the average depth to water exceeds 2 metres below ground level (m bgl). However, it may be prudent to reduce potential risks during any deep intrusive works via minimising contact with groundwater and implementing good hygiene practices. These potential risks and management controls should be documented in safe work method statements (SWMS).
- Nutrient concentrations should no longer be compared against the overly conservative ANZECC & ARMCANZ (2000) physical stressor trigger levels. Reductions in nutrient levels during stormwater treatment should continue to be monitored in accordance with FCC (2017).

5.0 Principles and Limitations of Investigation

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

Area	Uncertainties and Limitations
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 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.
Chemical Analysis Error	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.
Level of Assessment	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 of information obtained and the time required to obtain it outweigh the benefit of the information gained 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.
Comparison with Subsequent Inquiry	The justification and adequacy of the investigation findings 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.
Data Useability	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.
Nature of Advice	The investigation works herein are intended to develop and present sound, scientifically valid data concerning actual site conditions. Senversa does not seek or purport to provide legal or business advice.

6.0 References

ANZECC & ARMCANZ (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Council of Australia and New Zealand.

ANZG (2018) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. Available at www.waterquality.gov.au/anz-guidelines.

Drapper D, Olive K, McAlister T, Coleman R, Lampard J-L (2022) A Review of Pollutant Concentrations in Urban Stormwater Across Eastern Australia, After 20 Years. Front. Environ. Chem. 3:853764.

Fletcher T., Duncan H., Poelsma P., Lloyd S. (2004). *Stormwater Flow and Quality, and the Effectiveness of Non-Proprietary Stormwater Treatment Measures: A Review and Gap Analysis*. Cooperative Research Centre for Catchment Hydrology, Technical Report 04/8, December 2004.

NEPC (1999). *National Environment Protection Measure, Assessment of Site Contamination, as amended 2013* (ASC NEPM 2013). National Environment Protection Council.

NSW EPA (2020). *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land*. 5 May 2020. NSW Environment Protection Authority.

NHMRC (2008) *Guidelines for Managing Risks in Recreational Water*. National Health and Medical Research Council.

NHMRC & NRMMC (2011). *Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy.* Version 3.7 Updated January 2022. National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra. (ADWG, 2022).

Senversa (2022). *Water Management Plan reDirect Resource Recovery Facility – 24 Davis Road, Wetherill Park NSW*. 5 April 2022.

Senversa (2023). *Surface Water Monitoring Report – Annual 2023, ReDirect Resource Recovery Facility, 24 Davis Road, Wetherill Park, NSW.* 21 September 2023.

Figures

Legend

- ☐ Site Feature
- 🟥 Site Boundary

senversa

Created:	E. Marha	Date:	13/08/2024
Reviewed:	B. Chapple	Revision:	0
Approved:	E. Walsh	Scale:	1:1,000 (A3)
File:	S20102_006_F001_Site Location and Layout Plan		

0 5 10 20 30 40 Metres

Coordinate System: GDA2020 MGA Zone 56

Notes:
Aerial Imagery (17/05/2024) © Metromap

Figure No:	1
Title:	Site Location & Layout Plan
Project:	Groundwater Monitoring Event
Location:	24 Davis Road, Wetherill Park, NSW 2164
Client:	ReDirect Recycling

Path: S:\01 Jobs\1.NSW Jobs\S19355 SPACE URBAN WETHERILL PARK WMP\APRX\S20102 006.aprx

Legend

⊗	Surface Water Sample
⊕	Groundwater Monitoring Well
⊕	Groundwater Monitoring Well - Lost
→	Inferred Groundwater Flow Direction
▭	Site Boundary

Notes:
Aerial Imagery (17/05/2024) © Metromap

Created:	E. Marha	Date:	14/08/2024
Reviewed:	B. Chapple	Revision:	0
Approved:	E. Walsh	Scale:	1:750 (A3)
File:	S20102_006_F002 SW GW Sampling Locations		

Coordinate System: GDA2020 MGA Zone 56

Figure No:	**2**
Title:	**Surface Water and Groundwater Sampling Locations**
Project:	Groundwater Monitoring Event
Location:	24 Davis Road, Wetherill Park, NSW 2164
Client:	ReDirect Recycling

Path: S:\01 Jobs\1.NSW Jobs\S19355 SPACE URBAN WETHERILL PARK WMP\APRX\S20102 006.aprx

Sample ID		
Analyte	Units	Result
🟦 ANZG (2018) Aquatic ecosystems DGV - highly disturbed (90%) - freshwater		
🟩 ANZECC (2000) - physical stressors - South-east Australia Lowland River		
NHMRC (2008) Primary Contact Recreation - Health		

SW1

Analyte	Units	07/02/2024	09/07/2024
Copper (filtered)	mg/L	0.004	0.003
Zinc (filtered)	mg/L	<0.005	<0.005
Total Oxidised Nitrogen (as N)	mg/L	0.41	0.32
Total Nitrogen (as N)	mg/L	2.1	22.9
Phosphorus (as P)	mg/L	0.1	6.68
TRH >C10-C16 Fraction minus naphthalene (F2)	µg/L	630	<100

SW2

Analyte	Units	07/02/2024	09/07/2024
Copper (filtered)	mg/L	0.004	0.004
Zinc (filtered)	mg/L	0.014	0.023
Total Oxidised Nitrogen (as N)	mg/L	0.28	0.51
Total Nitrogen (as N)	mg/L	1.2	4.3
Phosphorus (as P)	mg/L	0.03	0.63
TRH >C10-C16 Fraction minus naphthalene (F2)	µg/L	<100	<100

senversa

Legend

⊗ Surface Water Sample

🟥 Site Boundary

Notes:
Aerial Imagery (17/05/2024) © Metromap

Created:	E. Marha	Date:	16/09/2024
Reviewed:	B. Chapple	Revision:	0
Approved:	E. Walsh	Scale:	1:850 (A3)
File:	S20102_006_F003 SW Exceedances		

0 5 10 20 30 Metres
Coordinate System: GDA2020 MGA Zone 56

Figure No:	**3**
Title:	**Surface Water Exceedances**
Project:	Groundwater Monitoring Event
Location:	24 Davis Road, Wetherill Park, NSW 2164
Client:	ReDirect Recycling

Path: S:\01_Jobs\1_NSW_Jobs\S19355_SPACE_URBAN_WETHERILL_PARK_WMP\APRX\S20102_006.aprx

Sample ID		
Analyte	Units	Result
ANZG (2018) Aquatic ecosystems DGV- highly disturbed (90%) - freshwater		
NEPM (2013) Table 1A(4) Comm/Ind HSL D Vapour Intrusion, Sand (2m-4m)		
NHMRC (2008) Primary Contact Recreation - Health		

MW6

Analyte	Units	08/02/2023	14/08/2023	09/02/2024	11/07/2024
Copper (filtered)	mg/L	0.003	<0.001	<0.001	<0.001

MW4

Analyte	Units	08/02/2023	14/08/2023	14/02/2024	11/07/2024
Copper (filtered)	mg/L	0.005	<0.001	0.001	<0.001
Manganese (filtered)	mg/L	**5.45**	**6.04**	**5.03**	**4**
Nickel (filtered)	mg/L	0.021	0.020	0.017	0.011

MW3

Analyte	Units	08/02/2023	14/08/2023	09/02/2024	11/07/2024
Chromium (filtered)	mg/L	0.002	<0.010	0.005	<0.001
Copper (filtered)	mg/L	<0.010	0.002	0.006	0.002
Manganese (filtered)	mg/L	**6.15**	**6.57**	**7.08**	**7.4**
Nickel (filtered)	mg/L	0.191	**0.207**	0.197	0.2
Zinc (filtered)	mg/L	0.23	0.122	0.253	0.25

MW1

Analyte	Units	08/02/2023	14/08/2023	09/02/2024	11/07/2024
Copper (filtered)	mg/L	0.015	<0.001	<0.001	0.003
Manganese (filtered)	mg/L	0.92	2.26	0.59	4.84
Nickel (filtered)	mg/L	0.023	0.036	0.015	0.156
Zinc (filtered)	mg/L	0.012	0.045	0.016	0.174

MW2

Analyte	Units	08/02/2023	14/08/2023	09/02/2024	11/07/2024
Copper (filtered)	mg/L	0.011	<0.001	<0.001	<0.001
Manganese (filtered)	mg/L	0.96	1.00	1.76	3.28

Legend

- Groundwater Monitoring Well
- Groundwater Monitoring Well - Lost
- 🟥 Site Boundary

senversa

Notes:
Aerial Imagery (17/05/2024) © Metromap

Created:	E. Marha	Date:	16/09/2024
Reviewed:	B. Chapple	Revision:	0
Approved:	E. Walsh	Scale:	1:850 (A3)
File:	S20102_006_F004 GW Exceedances		

0 5 10 20 30 Metres
Coordinate System: GDA2020 MGA Zone 56

Figure No:	**4**
Title:	**Groundwater Exceedances**
Project:	Groundwater Monitoring Event
Location:	24 Davis Road, Wetherill Park, NSW 2164
Client:	ReDirect Recycling

Path: S:\01 Jobs\1.NSW Jobs\S19355 SPACE URBAN WETHERILL PARK WMP\APRX\S20102 006.aprx

Tables

Project: Baseline Groundwater Condition Report - 2024
Client: ReDirect Recycling
Site Address: ReDirect Resource Recovery Facility, 24 Davis Road, Wetherill Park, NSW

Table 1: Groundwater Gauging Measurements

Monitoring Data		Survey Data			Groundwater Data					
Location Code	Date Gauged	Easting	Northing	Top of Casing (m AHD)	Depth to Water (m bTOC)	Total Well Depth (m bTOC)	Depth to Product (m bTOC)	Product Thickness (m)	Groundwater Elevation (m AHD)	Gauging Comments
MW1	6/02/2023	305715.1	6253955.6		2.145	6.61	-	-		
MW1	8/02/2023	305715.1	6253955.6		2.111	6.61	-	-		
MW1	2/08/2023	305715.1	6253955.6		2.634	6.61	-	-		
MW1	7/02/2024	305715.1	6253955.6		2.25	6.61	-	-		
MW1	9/02/2024	305715.1	6253955.6		2.235	6.61	-	-		Before hydrasleeve sampling
MW1	9/07/2024	305715.1	6253955.6		1.93	6.61	-	-		
MW1	11/07/2024	305715.1	6253955.6		1.925	6.61	-	-		
MW2	6/02/2023	305714.5	6253975.4		2.96	7.59	-	-		
MW2	8/02/2023	305714.5	6253975.4		2.957	7.59	-	-		
MW2	2/08/2023	305714.5	6253975.4		3.19	7.57	-	-		
MW2	7/02/2024	305714.5	6253975.4		3.01	7.57	-	-		
MW2	9/02/2024	305714.5	6253975.4		2.97	7.57	-	-		Before hydrasleeve sampling
MW2	9/07/2024	305714.5	6253975.4		2.577	7.58	-	-		
MW2	11/07/2024	305714.5	6253975.4		2.555	7.58	-	-		
MW3	6/02/2023	305677.6	6254060.5		2.971	8.08	-	-		
MW3	8/02/2023	305677.6	6254060.5		2.945	8.08	-	-		
MW3	2/08/2023	305677.6	6254060.5		3.599	8.07	-	-		
MW3	7/02/2024	305677.6	6254060.5		3.18	8.05	-	-		
MW3	9/02/2024	305677.6	6254060.5		3.175	8.05	-	-		Before hydrasleeve sampling
MW3	9/07/2024	305677.6	6254060.5		2.88	8.05	-	-		
MW3	11/07/2024	305677.6	6254060.5		2.875	8.05	-	-		
MW4	6/02/2023	305722.8	6254066.3		2.205	6.99	-	-		
MW4	8/02/2023	305722.8	6254066.3		2.224	6.99	-	-		
MW4	2/08/2023	305722.8	6254066.3		2.565	6.98	-	-		
MW4	7/02/2024	305722.8	6254066.3		2.65	6.98	-	-		
MW4	9/02/2024	305722.8	6254066.3		2.53	6.98	-	-		Before hydrasleeve sampling
MW4	14/02/2024	305722.8	6254066.3		2.77	6.98	-	-		Post hydrasleeve sampling
MW4	9/07/2024	305722.8	6254066.3		2.325	6.98	-	-		
MW4	11/07/2024	305722.8	6254066.3		2.31	6.98	-	-		
MW6	6/02/2023	305682.0	6254069.3		4.444	7.19	-	-		
MW6	8/02/2023	305682.0	6254069.3		4.444	7.19	-	-		
MW6	2/08/2023	305682.0	6254069.3		4.748	7.17	-	-		
MW6	7/02/2024	305682.0	6254069.3		4.369	7.16	-	-		
MW6	9/02/2024	305682.0	6254069.3		4.357	7.16	-	-		Before hydrasleeve sampling
MW6	9/07/2024	305682.0	6254069.3		3.565	7.16	-	-		Brown silt on IP
MW6	11/07/2024	305682.0	6254069.3		3.557	7.16	-	-		

Prepared by:
Checked by:

Project: Baseline Groundwater Condition Report - 2024
Client: ReDirect Recycling
Site Address: ReDirect Resource Recovery Facility, 24 Davis Road, Wetherill Park, NSW

Table 2: Groundwater Geochemical Parameters

Monitoring Well Information		Water Quality Stabilised Results										
Location Code	Sample Date	DO (mg/L)	EC (µS/cm)	TDS	pH	ORP (Er)	Redox (mV)	Temp (°C)	Field Observations			
		±10%	±3%		±0.05	(mV)	±10mV	±10%	Colour	Sheen	Odour	Turbidity
MW1	8/02/2023	2.02	22,382	14,548	6.47	28.3	233.3	22.4	orange	no sheen	no odour	Suspended sediments
MW1	14/08/2023	6.33	19,738	12,830	6.34	116.4	321.4	17.0	colourless to orange	no sheen	no odour	Non-turbid
MW1	9/02/2024	3.07	25,870	16,816	6.66	38.1	243.1	22.3	colourless	no sheen	no odour	Suspended sediments
MW1	11/07/2024	1.06	22,394	14,556	6.27	-58.0	147.0	17.5	light brown	no sheen	no odour	Slightly turbid
MW2	8/02/2023	1.35	21,545	14,004	6.33	154.4	359.4	20.8	colourless	no sheen	no odour	Slightly turbid
MW2	14/08/2023	1.20	17,006	11,054	6.44	129.0	334.0	17.0	colourless	no sheen	no odour	Slightly turbid
MW2	9/02/2024	3.05	27,224	17,696	6.59	92.7	297.7	23.2	colourless	no sheen	no odour	Suspended sediments
MW2	11/07/2024	1.42	23,588	15,332	6.45	-17.6	187.4	18.2	colourless	no sheen	no odour	Suspended sediments
MW3	8/02/2023	0.79	29,765	19,347	5.78	65.7	270.7	23.6	colourless	no sheen	no odour	Slightly turbid
MW3	14/08/2023	0.92	24,992	16,245	5.91	62.6	267.6	15.9	colourless	no sheen	no odour	Slightly turbid
MW3	9/02/2024	2.11	34,645	22,519	6.50	1.5	206.5	23.5	light brown	no sheen	no odour	Slightly turbid
MW3	11/07/2024	2.20	28,201	18,331	5.86	15.0	220.0	18.3	light brown	no sheen	no odour	Slightly turbid
MW4	8/02/2023	0.00	17,881	11,623	6.54	69.0	274.0	22.7	colourless	no sheen	no odour	Slightly turbid
MW4	14/08/2023	1.70	7,133	4,636	6.55	18.7	223.7	17.1	colourless	no sheen	no odour	Non-turbid
MW4	14/02/2024	3.80	19,817	12,881	6.66	-11.2	193.8	29.6	colourless	no sheen	no odour	Slightly turbid
MW4	11/07/2024	1.29	14,807	9,625	6.64	-58.7	146.3	18.4	colourless	no sheen	no odour	Non-turbid
MW6	8/02/2023	0.10	2,323	1,510	7.19	89.8	294.8	22.7	light brown	no sheen	no odour	Moderately turbid
MW6	14/08/2023	0.81	1,362	885	7.22	-6.4	198.6	16.8	yellow	no sheen	sulphurous	Slightly turbid
MW6	9/02/2024	5.30	2,204	1,433	7.41	56.6	261.6	22.5	colourless	no sheen	no odour	Slightly turbid
MW6	11/07/2024	-	-	-	-	-	-	-	parameters not collected due to limited water available			

Comments

Values presented are those after stabilisation. In accordance with EPA Publication 669, the parameters were considered stable when three consecutive readings (obtained several minutes apart) were within the specified parameters.

DO = Dissolved Oxygen

EC = Electrical Conductivity.

TDS = Total Dissolved Solids

* TDS calculated by EC multiplied by 0.65

ORP = Oxidation Reduction Potential as millivolts (mV). Field values (Er values, mV) taken with redox probe with a platinum electrode and silver/silver chloride reference electrode. For interpretation of the Er results can be converted to Eh values using the following conversion: Eh (mV) = Er (mV) + 205.

Prepared by: BC
Checked by: EW

Project: Baseline Groundwater Condition Report - 2024
Client: ReDirect Recycling
Site Address: ReDirect Resource Recovery Facility, 24 Davis Road, Wetherill Park, NSW

senversa

					Location Code	SW1	SW1	SW1	SW1	SW2	SW2	SW2	SW2
					Field ID	SW1	SW1	SW 1	SW1	SW2	SW2	SW 2	SW2
					Date	10/02/2023	14/08/2023	07/02/2024	09/07/2024	10/02/2023	14/08/2023	07/02/2024	09/07/2024
					Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
					Lab Report No.	ES2304342	ES2327328	ES2403942	ES2422553	ES2304342	ES2327328	ES2403942	ES2422553
	Unit	EQL	ANZG (2018) Aquatic ecosystems DGV - highly disturbed (90%) -	ANZECC (2000) - physical stressors - South-east Australia Lowland River	**NHMRC (2008) Primary Contact Recreation - Health**								
Physical Parameters													
Total Dissolved Solids	mg/L	10				240	316	374	228	352	105	394	282
Total Suspended Solids	mg/L	5				86	238	91	7,260	69	39	8	90
pH (Lab)	pH Units	0.01			**6.5-8.5**[#10]	-	8.03	-	-	-	7.75	-	-
Metals													
Arsenic (filtered)	mg/L	0.001	0.042[#1]		**0.1**[#11]	0.001	0.001	0.001	<0.001	<0.001	<0.001	0.003	<0.001
Cadmium (filtered)	mg/L	0.0001	0.0004[#2]		**0.02**[#11]	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (filtered)	mg/L	0.001	0.0033[#3]		**0.5**[#12]	0.002	0.001	<0.001	0.001	0.002	<0.001	<0.001	0.001
Copper (filtered)	mg/L	0.001	0.0018[#4]		**20**[#11]	0.006	0.004	0.004	0.003	0.003	0.001	0.004	0.004
Iron (filtered)	mg/L	0.05			**140**[#13]	0.06	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05
Lead (filtered)	mg/L	0.001	0.0056[#2]		**0.1**[#11]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese (filtered)	mg/L	0.001	2.5[#4]		**5**[#11]	0.01	0.016	0.02	0.045	<0.01	0.007	<0.01	0.015
Mercury (filtered)	mg/L	0.0001	0.0006[#5]		**0.01**[#11]	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel (filtered)	mg/L	0.001	0.013[#2]		**0.2**[#11]	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Zinc (filtered)	mg/L	0.005	0.015[#2]		**60**[#13]	<0.005	0.005	<0.005	<0.005	<0.005	0.038	0.014	0.023
Inorganics													
Total Oxidised Nitrogen (as N)	mg/L	0.01		0.04		0.36	0.68	0.41	0.32	0.50	0.62	0.28	0.51
Total Kjeldahl Nitrogen	mg/L	0.1				0.3	1.7	1.7	22.6	1.0	0.7	0.9	3.8
Total Nitrogen (as N)	mg/L	0.1		0.35		0.7	2.4	2.1	22.9	1.5	1.3	1.2	4.3
Phosphorus (as P)	mg/L	0.01		0.025		0.06	0.35	0.10	6.68	0.19	0.09	0.03	0.63
BTEX													
Benzene	µg/L	1	1,300[#4]		**10**[#11]	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/L	2	230[#4]		**8,000**[#11]	<2	<2	<2	<2	<2	<2	<2	<2
Ethylbenzene	µg/L	2	110[#4]		**3,000**[#11]	<2	<2	<2	<2	<2	<2	<2	<2
Xylene (m & p)	µg/L	2				<2	<2	<2	<2	<2	<2	<2	<2
Xylene (o)	µg/L	2	470[#4]			<2	<2	<2	<2	<2	<2	<2	<2
Total Xylene	µg/L	2			**6,000**[#11]	<2	<2	<2	<2	<2	<2	<2	<2
Total BTEX	µg/L	1				<1	<1	<1	<1	<1	<1	<1	<1
Total Petroleum Hydrocarbons													
C6-C9 Fraction	µg/L	20				<20	<20	<20	<20	<20	<20	<20	<20
C10-C14 Fraction	µg/L	50				<50	<50	490	<50	<50	<50	<50	<50
C15-C28 Fraction	µg/L	100				<100	<100	560	290	<100	<100	<100	<100
C29-C36 Fraction	µg/L	50				<50	<50	<50	130	<50	<50	<50	<50
C10-C36 Fraction (Sum)	µg/L	50				<50	<50	1,050	420	<50	<50	<50	<50
Total Recoverable Hydrocarbons													
C6-C10 Fraction	µg/L	20				<20	<20	<20	<20	<20	<20	<20	<20
C6-C10 Fraction minus BTEX (F1)	µg/L	20	440[#6]		**900**[#14]	<20	<20	<20	<20	<20	<20	<20	<20
>C10-C16 Fraction	µg/L	100				<100	<100	630	<100	<100	<100	<100	<100
>C10-C16 Fraction minus naphthalene (F2)	µg/L	100	440[#6]		**900**[#14]	<100	<100	630	<100	<100	<100	<100	<100
>C16-C34 Fraction	µg/L	100	640[#7]		**900**[#15]	<100	<100	460	380	<100	<100	<100	<100
>C34-C40 Fraction	µg/L	100	640[#8]		**900**[#15]	<100	<100	<100	<100	<100	<100	<100	<100
>C10-C40 Fraction (Sum)	µg/L	100				<100	<100	1,090	380	<100	<100	<100	<100
PAHs													
Acenaphthene	µg/L	1			**5,300**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	µg/L	1	0.4[#5]		**18,000**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	µg/L	0.5	0.2[#5]		**0.1**[#11]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	µg/L	1	1.4[#5]		**8,000**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	µg/L	1			**2,900**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-c,d)pyrene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	µg/L	1	37[#4]		**700**[#16]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (VOC)	µg/L	5				-	-	-	<5	-	-	-	<5
Phenanthrene	µg/L	1	2[#5]			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	µg/L	1			**1,200**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene TEQ (Zero)	µg/L	0.5			**0.1**[#17]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenols													
2-Methylphenol	µg/L	1			**9,300**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Nitrophenol	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	µg/L	1	2[#9]		**3,600**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
3-&4-Methylphenol (m&p-cresol)	µg/L	2				<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
4-Chloro-3-methylphenol	µg/L	1			**14,000**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Phenol	µg/L	1	600[#4]		**58,000**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Halogenated Phenols													
2,4,5-Trichlorophenol	µg/L	1			**12,000**[#13]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	µg/L	1	20[#5]		**200**[#11]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	µg/L	1	160[#5]	4	**2,000**[#11]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	µg/L	1	34[#9]			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	µg/L	1	490[#5]		**3,000**[#11]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	µg/L	2	10[#5]		**100**[#11]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Comments

#1 ANZG (2018). The more conservative value (Arsenic AsV) out of the available arsenic species was adopted for initial screening purposes.
#2 ANZG (2018). Adjust DGVs for site-specific hardness using the hardness-dependent algorithm in Warne et al. (2018)
#3 ANZG (2018). The more conservative value (Chromium CrIII) out of the available chromium species was adopted for initial screening purposes.
#4 ANZG (2018)
#5 ANZG (2018). Higher species protection level adopted as recommended
#6 CRWB (2019). Lowest of values for gasoline (C4-C12) and diesel (C8-C21) range hydrocarbons.
#7 CRWB (2019). Value for diesel (C8-C21) mixture.
#8 CRWB (2019). Value for diesel (C8-C21) mixture. No value derived for TPH >C21 as not considered soluble; diesel value used for screening.
#9 ANZG (2018). Unknown species protection level
#10 NHMRC (2008)
#11 NHMRC (2011) - Health. Multiplied by a factor of x10
#12 NHMRC (2011) - Health. Guideline for Cr (VI) conservatively adopted for comparision to total chromium. Speciated analysis should be undertaken where guideline is exceeded. Multiplied by a factor of x10
#13 USEPA Tap Water RSL (TR=1E-06; THQ=0.1) - May 2024. Multiplied by a factor of x10
#14 WHO (2008). Lowest derived value for aliphatic and aromatic fractions in this range. Multiplied by a factor of x10
#15 Lowest derived value for aliphatic and aromatic fractions in this range (90 ug/L). Multiplied by a factor of x10
#16 NHMRC (2011) - Health. Derived as per NHMRC (2011) based on TDI used for NEPM HSL derivation. Multiplied by a factor of x10
#17 NHMRC (2011) - Health. Value is for BaP but applies to TEQ. Multiplied by a factor of x10

Prepared by: BC
Checked by: EW

Project: Baseline Groundwater Condition Report - 2024
Client: ReDirect Recycling
Site Address: ReDirect Resource Recovery Facility, 24 Davis Road, Wetherill Park, NSW

Groundwater Analytical Results

senversa

					Location Code	MW1	MW1	MW1	MW1	MW2	MW2	MW2	MW2	MW3	MW3	MW3	MW3
					Field ID	MW1	MW1	MW1	MW1	MW2	MW2	MW2	MW2	MW3	MW3	MW3	MW3
					Date	08/02/2023	14/08/2023	09/02/2024	11/07/2024	08/02/2023	14/08/2023	09/02/2024	11/07/2024	08/02/2023	14/08/2023	09/02/2024	11/07/2024
					Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Highest Conc.	Highest Conc.	Highest Conc.	Highest Conc.
					Lab Report No.	ES2304011	ES2327328	ES2404239	ES2423038	ES2304011	ES2327328	ES2404239	ES2423038	ES2304011 and 316159	ES2327328 and 1020195	ES2404239 and 1067666	ES2423038 and 1117968
	Unit	EQL	ANZG (2018) Aquatic ecosystems DGV- highly disturbed (90%) freshwater	**NEPM (2013) Table 1A(4) Comm/Ind HSL D Vapour Intrusion, Sand (2m-4m)**	**NHMRC (2008) Primary Contact Recreation - Health**												
Physical Parameters																	
Electrical Conductivity	µS/cm	1				25,800	-	-	-	25,700	-	-	-	34,200	-	-	-
Total Dissolved Solids	mg/L	1				16,800	-	-	-	16,700	-	-	-	22,200	-	-	-
pH (Lab)	pH Units	0.01			**6.5-8.5$^{\#12}$**	7.74	-	-	-	7.70	-	-	-	7.09	-	-	-
Metals																	
Arsenic (filtered)	mg/L	0.001	0.042$^{\#2}$		**0.1$^{\#13}$**	0.011	0.008	0.012	0.007	0.004	0.004	0.004	0.008	0.004	0.002	0.011	0.003
Cadmium (filtered)	mg/L	0.0001	0.0004$^{\#3}$		**0.02$^{\#13}$**	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0010	<0.0010	<0.0001
Chromium (filtered)	mg/L	0.001	0.0033$^{\#4}$		**0.5$^{\#14}$**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.010	0.005	<0.001
Copper (filtered)	mg/L	0.001	0.0018$^{\#5}$		**20$^{\#13}$**	0.015	<0.001	<0.001	0.003	0.011	<0.001	<0.001	<0.001	<0.010	0.002	0.006	0.002
Iron (filtered)	mg/L	0.01			**140$^{\#15}$**	4.97	2.01	3.96	87.2	0.40	0.58	0.54	2.30	5.05	6.04	8.08	7.4
Lead (filtered)	mg/L	0.001	0.0056$^{\#3}$		**0.1$^{\#13}$**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010	0.002	0.005	<0.001
Manganese (filtered)	mg/L	0.001	2.5$^{\#5}$		**5$^{\#13}$**	0.92	2.26	0.59	4.84	0.96	1.00	1.76	3.28	**6.15**	**6.57**	**7.08**	**7.4**
Mercury (filtered)	mg/L	0.00005	0.0006$^{\#6}$		**0.01$^{\#13}$**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel (filtered)	mg/L	0.001	0.013$^{\#3}$		**0.2$^{\#13}$**	0.023	0.036	0.015	0.156	0.006	0.005	0.006	0.006	0.191	**0.207**	0.197	0.200
Zinc (filtered)	mg/L	0.001	0.015$^{\#3}$		**60$^{\#15}$**	0.012	0.045	0.016	0.174	0.008	0.009	0.009	<0.005	0.23	0.122	0.253	0.25
Inorganics																	
Ammonia (as N)	mg/L	0.01	1.43$^{\#5}$			0.71	0.49	0.48	0.19	0.52	0.52	0.44	0.26	0.22	0.29	0.29	0.28
Nitrate (as N)	mg/L	0.01	3.8$^{\#7}$		**110$^{\#16}$**	<0.10	0.02	<0.01	<0.01	0.03	<0.01	<0.01	0.02	<0.01	<0.01	0.10	0.01
Nitrite (as N)	mg/L	0.01			**9$^{\#17}$**	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Oxidised Nitrogen (as N)	mg/L	0.01				<0.10	0.02	<0.01	<0.01	0.03	<0.01	<0.01	0.02	0.02	<0.01	0.11	0.02
Total Kjeldahl Nitrogen	mg/L	0.1				0.9	0.6	0.6	1.1	1.0	0.6	0.8	0.6	1.3	0.5	1.3	1.0
Total Nitrogen (as N)	mg/L	0.1				0.9	0.6	0.6	1.1	1.0	0.6	0.8	0.6	1.3	0.5	1.4	1.0
Phosphorus (as P)	mg/L	0.01				<0.05	0.02	<0.01	0.04	0.06	0.04	0.05	0.05	0.8	0.02	0.08	0.04
Phosphate (as P)	mg/L	0.01				-	-	-	-	-	-	-	-	-	0.03	0.05	0.03
Ortho-phosphate (as P)	mg/L	0.01				<0.01	-	-	-	0.02	-	-	-	<0.01	-	-	-
Fluoride	mg/L	0.1			**15$^{\#13}$**	0.8	-	-	-	0.7	-	-	-	1.2	-	-	-
Sodium Absorption Ratio (filtered)	-	0.01				30.4	-	-	-	31.6	-	-	-	37.8	-	-	-
Major Ions																	
Calcium (filtered)	mg/L	1				273	-	-	-	232	-	-	-	181	-	-	-
Chloride	mg/L	1				8,840	-	-	-	8,800	-	-	-	11,900	-	-	-
Magnesium (filtered)	mg/L	1				810	-	-	-	826	-	-	-	1,040	-	-	-
Potassium (filtered)	mg/L	1				25	-	-	-	21	-	-	-	14	-	-	-
Sulfate (as SO4) (filtered)	mg/L	1				691	-	-	-	756	-	-	-	907	-	-	-
Sodium (filtered)	mg/L	1				4,430	-	-	-	4,590	-	-	-	5,980	-	-	-
Anions Total	meq/L	0.01				282	-	-	-	280	-	-	-	359	-	-	-
Cations Total	meq/L	0.01				274	-	-	-	280	-	-	-	355	-	-	-
Ionic Balance	%	0.01				1.52	-	-	-	0.09	-	-	-	0.55	-	-	-
Alkalinity																	
Bicarbonate Alkalinity (as CaCO3)	mg/L	1				916	-	-	-	815	-	-	-	222	-	-	-
Carbonate Alkalinity (as CaCO3)	mg/L	1				<1	-	-	-	<1	-	-	-	<1	-	-	-
Hydroxide Alkalinity (as CaCO3)	mg/L	1				<1	-	-	-	<1	-	-	-	<1	-	-	-
Total Alkalinity (as CaCO3)	mg/L	1				916	-	-	-	815	-	-	-	222	-	-	-
Hardness (as CaCO3) (filtered)	mg/L	1				4,020	-	-	-	3,980	-	-	-	4,730	-	-	-
BTEX																	
Benzene	µg/L	1	1,300$^{\#5}$	**5,000$^{\#1}$**	**10$^{\#13}$**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/L	1	230$^{\#5}$	**NL $^{\#1}$**	**8,000$^{\#13}$**	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Ethylbenzene	µg/L	1	110$^{\#5}$	**NL $^{\#1}$**	**3,000$^{\#13}$**	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene (m & p)	µg/L	2				<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene (o)	µg/L	1	470$^{\#5}$			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Xylene	µg/L	2		**NL $^{\#1}$**	**6,000$^{\#13}$**	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total BTEX	µg/L	1				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Petroleum Hydrocarbons																	
C6-C9 Fraction	µg/L	10				<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C10-C14 Fraction	µg/L	50				<50	<50	<50	250	<50	<50	<50	<50	<50	<50	<50	90
C15-C28 Fraction	µg/L	100				<100	<100	<100	170	<100	<100	<100	<100	140	<100	<100	810
C29-C36 Fraction	µg/L	50				<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	300
C10-C36 Fraction (Sum)	µg/L	50				<50	<50	<50	420	<50	<50	<50	<50	140	<50	<50	810
Total Recoverable Hydrocarbons																	
C6-C10 Fraction	µg/L	10				<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C6-C10 Fraction minus BTEX (F1)	µg/L	10	440$^{\#8}$	**6,000$^{\#1}$**	**900$^{\#18}$**	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
>C10-C16 Fraction	µg/L	50				<100	<100	<100	260	<100	<100	<100	<100	130	<100	<100	110
>C10-C16 Fraction minus naphthalene (F2)	µg/L	50	440$^{\#8}$	**NL $^{\#1}$**	**900$^{\#18}$**	<100	<100	<100	260	<100	<100	<100	<100	130	<100	<100	110
>C16-C34 Fraction	µg/L	100	640$^{\#9}$		**900$^{\#19}$**	<100	<100	<100	260	<100	<100	<100	<100	<100	<100	<100	600
>C34-C40 Fraction	µg/L	100	640$^{\#10}$		**900$^{\#19}$**	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	200
>C10-C40 Fraction (Sum)	µg/L	50				<100	<100	<100	520	<100	<100	<100	<100	130	<100	<100	910

Prepared by: BC
Checked by: EW

					Location Code	MW4	MW4	MW4	MW4	MW6	MW6	MW6	MW6
					Field ID	MW4	MW4	MW4	MW4	MW6	MW6	MW6	MW6
					Date	08/02/2023	14/08/2023	14/02/2024	11/07/2024	08/02/2023	14/08/2023	09/02/2024	11/07/2024
					Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
					Lab Report No.	ES2304011	ES2327328	ES2404752	ES2423038	ES2304011	ES2327328	ES2404239	ES2423038
	Unit	EQL	ANZG (2018) Aquatic ecosystems DGV- highly disturbed (90%) freshwater	**NEPM (2013) Table 1A(4) Comm/Ind HSL D Vapour Intrusion, Sand (2m-4m)**	**NHMRC (2008) Primary Contact Recreation - Health**								
Physical Parameters													
Electrical Conductivity	µS/cm	1				19,900	-	-	-	2,310	-	-	-
Total Dissolved Solids	mg/L	1				12,900	-	-	-	1,500	-	-	-
pH (Lab)	pH Units	0.01			**6.5-8.5**[#12]	7.72	-	-	-	8.06	-	-	-
Metals													
Arsenic (filtered)	mg/L	0.001	0.042[#2]		**0.1**[#13]	0.005	0.007	0.008	0.007	<0.001	0.002	0.002	<0.001
Cadmium (filtered)	mg/L	0.0001	0.0004[#3]		**0.02**[#13]	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (filtered)	mg/L	0.001	0.0033[#4]		**0.5**[#14]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper (filtered)	mg/L	0.001	0.0018[#5]		**20**[#13]	0.005	<0.001	0.001	<0.001	0.003	<0.001	<0.001	<0.001
Iron (filtered)	mg/L	0.01			**140**[#15]	1.22	2.91	2.04	1.90	<0.05	0.20	<0.05	<0.05
Lead (filtered)	mg/L	0.001	0.0056[#3]		**0.1**[#13]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese (filtered)	mg/L	0.001	2.5[#5]		**5**[#13]	**5.45**	**6.04**	**5.03**	4.00	0.04	0.225	0.06	<0.01
Mercury (filtered)	mg/L	0.00005	0.0006[#6]		**0.01**[#13]	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel (filtered)	mg/L	0.001	0.013[#3]		**0.2**[#13]	0.021	0.020	0.017	0.011	<0.001	0.002	0.001	<0.001
Zinc (filtered)	mg/L	0.001	0.015[#3]		**60**[#15]	<0.005	<0.005	0.006	<0.005	<0.005	0.006	<0.005	<0.005
Inorganics													
Ammonia (as N)	mg/L	0.01	1.43[#5]			0.34	0.32	0.30	0.28	0.02	0.09	<0.01	<0.01
Nitrate (as N)	mg/L	0.01	3.8[#7]		**110**[#16]	0.01	<0.01	<0.01	<0.01	1.00	0.18	1.93	1.64
Nitrite (as N)	mg/L	0.01			**9**[#17]	<0.01	<0.01	<0.01	<0.01	0.25	<0.01	<0.01	<0.01
Total Oxidised Nitrogen (as N)	mg/L	0.01				0.01	<0.01	<0.01	<0.01	1.25	0.18	1.93	1.64
Total Kjeldahl Nitrogen	mg/L	0.1				1.1	0.5	1.2	0.4	0.4	0.4	1.0	0.3
Total Nitrogen (as N)	mg/L	0.1				1.1	0.5	1.2	0.4	1.6	0.6	2.9	1.9
Phosphorus (as P)	mg/L	0.01				0.09	0.01	0.07	0.04	0.09	0.14	0.03	0.05
Phosphate (as P)	mg/L	0.01				-	-	-	-	-	-	-	-
Ortho-phosphate (as P)	mg/L	0.01				<0.01	-	-	-	<0.01	-	-	-
Fluoride	mg/L	0.1			**15**[#13]	1.6	-	-	-	1.8	-	-	-
Sodium Absorption Ratio (filtered)	-	0.01				21.4	-	-	-	6.70	-	-	-
Major Ions													
Calcium (filtered)	mg/L	1				299	-	-	-	50	-	-	-
Chloride	mg/L	1				6,680	-	-	-	341	-	-	-
Magnesium (filtered)	mg/L	1				786	-	-	-	112	-	-	-
Potassium (filtered)	mg/L	1				35	-	-	-	6	-	-	-
Sulfate (as SO4) (filtered)	mg/L	1				280	-	-	-	44	-	-	-
Sodium (filtered)	mg/L	1				3,100	-	-	-	373	-	-	-
Anions Total	meq/L	0.01				216	-	-	-	27.2	-	-	-
Cations Total	meq/L	0.01				215	-	-	-	28.1	-	-	-
Ionic Balance	%	0.01				0.25	-	-	-	1.61	-	-	-
Alkalinity													
Bicarbonate Alkalinity (as CaCO3)	mg/L	1				1,110	-	-	-	834	-	-	-
Carbonate Alkalinity (as CaCO3)	mg/L	1				<1	-	-	-	<1	-	-	-
Hydroxide Alkalinity (as CaCO3)	mg/L	1				<1	-	-	-	<1	-	-	-
Total Alkalinity (as CaCO3)	mg/L	1				1,110	-	-	-	834	-	-	-
Hardness (as CaCO3) (filtered)	mg/L	1				3,980	-	-	-	586	-	-	-
BTEX													
Benzene	µg/L	1	1,300[#5]	**5,000**[#1]	**10**[#13]	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/L	1	230[#5]	**NL** [#1]	**8,000**[#13]	<2	<2	2	<2	<2	<2	<2	<2
Ethylbenzene	µg/L	1	110[#5]	**NL** [#1]	**3,000**[#13]	<2	<2	<2	<2	<2	<2	<2	<2
Xylene (m & p)	µg/L	2				<2	<2	<2	<2	<2	<2	<2	<2
Xylene (o)	µg/L	1	470[#5]			<2	<2	<2	<2	<2	<2	<2	<2
Total Xylene	µg/L	2		**NL** [#1]	**6,000**[#13]	<2	<2	<2	<2	<2	<2	<2	<2
Total BTEX	µg/L	1				<1	<1	2	<1	<1	<1	<1	<1
Total Petroleum Hydrocarbons													
C6-C9 Fraction	µg/L	10				<20	<20	<20	<20	<20	<20	<20	<20
C10-C14 Fraction	µg/L	50				<50	<50	<50	<50	<50	<50	<50	<50
C15-C28 Fraction	µg/L	100				<100	<100	<100	<100	<100	<100	<100	<100
C29-C36 Fraction	µg/L	50				<50	<50	<50	<50	<50	<50	<50	<50
C10-C36 Fraction (Sum)	µg/L	50				<50	<50	<50	<50	<50	<50	<50	<50
Total Recoverable Hydrocarbons													
C6-C10 Fraction	µg/L	10				<20	<20	<20	<20	<20	<20	<20	<20
C6-C10 Fraction minus BTEX (F1)	µg/L	10	440[#8]	**6,000**[#1]	**900**[#18]	<20	<20	<20	<20	<20	<20	<20	<20
>C10-C16 Fraction	µg/L	50				<100	<100	<100	<100	<100	<100	<100	<100
>C10-C16 Fraction minus naphthalene (F2)	µg/L	50	440[#8]	**NL** [#1]	**900**[#18]	<100	<100	<100	<100	<100	<100	<100	<100
>C16-C34 Fraction	µg/L	100	640[#9]		**900**[#19]	<100	<100	<100	<100	<100	<100	<100	<100
>C34-C40 Fraction	µg/L	100	640[#10]		**900**[#19]	<100	<100	<100	<100	<100	<100	<100	<100
>C10-C40 Fraction (Sum)	µg/L	50				<100	<100	<100	<100	<100	<100	<100	<100

Groundwater Analytical Results

					Location Code	MW1	MW1	MW1	MW1	MW2	MW2	MW2	MW2	MW3	MW3	MW3	MW3
					Field ID	MW1	MW1	MW1	MW1	MW2	MW2	MW2	MW2	MW3	MW3	MW3	MW3
					Date	08/02/2023	14/08/2023	09/02/2024	11/07/2024	08/02/2023	14/08/2023	09/02/2024	11/07/2024	08/02/2023	14/08/2023	09/02/2024	11/07/2024
					Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Highest Conc.	Highest Conc.	Highest Conc.	Highest Conc.
					Lab Report No.	ES2304011	ES2327328	ES2404239	ES2423038	ES2304011	ES2327328	ES2404239	ES2423038	ES2304011 and 316159	ES2327328 and 1020195	ES2404239 and 1067666	ES2423038 and 1117968
	Unit	EQL	ANZG (2018) Aquatic ecosystems DGV- highly disturbed (90%) freshwater	**NEPM (2013) Table 1A(4) Comm/Ind HSL D Vapour Intrusion, Sand (2m-4m)**	**NHMRC (2008) Primary Contact Recreation - Health**												
PAHs																	
Acenaphthene	µg/L	1			**5,300**[#15]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	µg/L	1	0.4[#6]		**18,000**[#15]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	µg/L	0.5	0.2[#6]		**0.1**[#13]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j+k)fluoranthene	µg/L	2				-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	µg/L	1	1.4[#6]		**8,000**[#15]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	µg/L	1			**2,900**[#15]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-c,d)pyrene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	µg/L	1	37[#5]	**NL** [#1]	**700**[#20]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (VOC)	µg/L	5				-	-	-	<5	-	-	-	<5	-	-	-	<5
Phenanthrene	µg/L	1	2[#6]			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	µg/L	1			**1,200**[#15]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene TEQ (Zero)	µg/L	0.5			**0.1**[#21]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ	µg/L	5			**0.1**[#21]	-	-	-	-	-	-	-	-	-	-	-	-
Total Positive PAHs	µg/L	1				-	-	-	-	-	-	-	-	0	-	-	-
Phenols																	
2-Methylphenol	µg/L	1			**9,300**[#15]	<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
2-Nitrophenol	µg/L	1				<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
2,4-Dimethylphenol	µg/L	1	2[#11]		**3,600**[#15]	<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
3-&4-Methylphenol (m&p-cresol)	µg/L	2				<2.0	-	-	-	<2.0	-	-	-	<2.0	-	-	-
4-Chloro-3-methylphenol	µg/L	1			**14,000**[#15]	<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
Phenol	µg/L	1	600[#5]		**58,000**[#15]	<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
Halogenated Phenols																	
2,4,5-Trichlorophenol	µg/L	1			**12,000**[#15]	<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
2,4,6-Trichlorophenol	µg/L	1	20[#6]		**200**[#13]	<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
2,4-Dichlorophenol	µg/L	1	160[#6]		**2,000**[#13]	<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
2,6-Dichlorophenol	µg/L	1	34[#11]			<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
2-Chlorophenol	µg/L	1	490[#6]		**3,000**[#13]	<1.0	-	-	-	<1.0	-	-	-	<1.0	-	-	-
Pentachlorophenol	µg/L	2	10[#6]		**100**[#13]	<2.0	-	-	-	<2.0	-	-	-	<2.0	-	-	-

Comments

#1 Value for shallow (2-4 m bgl) sand aquifer adopted for initial screening.
#2 ANZG (2018). The more conservative value (Arsenic AsV) out of the available arsenic species was adopted for initial screening purposes.
#3 ANZG (2018). Adjust DGVs for site-specific hardness using the hardness-dependent algorithm in Warne et al. (2018)
#4 ANZG (2018). Chromium CrIII adopted for initial screening purposes.
#5 ANZG (2018)
#6 ANZG (2018). Higher species protection level adopted as recommended
#7 Derived by NZ NIWA (2013) using ANZECC (2000) methodology. ANZECC (2000) value was withdrawn due to calculation errors.
#8 CRWB (2019). Lowest of values for gasoline (C4-C12) and diesel (C8-C21) range hydrocarbons.
#9 CRWB (2019). Value for diesel (C8-C21) mixture.
#10 CRWB (2019). Value for diesel (C8-C21) mixture. No value derived for TPH >C21 as not considered soluble; diesel value used for screening.
#11 ANZG (2018). Unknown species protection level
#12 NHMRC (2008)
#13 NHMRC (2011) - Health. Multiplied by a factor of x10
#14 NHMRC (2011) - Health. Guideline for Cr (VI) conservatively adopted for comparision to total chromium. Speciated analysis should be undertaken where guideline is exceeded. Multiplied by a factor of x10
#15 USEPA Tap Water RSL (TR=1E-06; THQ=0.1) - May 2024. Multiplied by a factor of x10
#16 NHMRC (2011) - Health. Converted from guideline for nitrate (as nitrate). Multiplied by a factor of x10
#17 NHMRC (2011) - Health. Converted from guideline for nitrite (as nitrite). Multiplied by a factor of x10
#18 WHO (2008). Lowest derived value for aliphatic and aromatic fractions in this range. Multiplied by a factor of x10
#19 Lowest derived value for aliphatic and aromatic fractions in this range (90 ug/L). Multiplied by a factor of x10
#20 NHMRC (2011) - Health. Derived as per NHMRC (2011) based on TDI used for NEPM HSL derivation. Multiplied by a factor of x10
#21 NHMRC (2011) - Health. Value is for BaP but applies to TEQ. Multiplied by a factor of x10

					Location Code	MW4	MW4	MW4	MW4	MW6	MW6	MW6	MW6
					Field ID	MW4	MW4	MW4	MW4	MW6	MW6	MW6	MW6
					Date	08/02/2023	14/08/2023	14/02/2024	11/07/2024	08/02/2023	14/08/2023	09/02/2024	11/07/2024
					Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
					Lab Report No.	ES2304011	ES2327328	ES2404752	ES2423038	ES2304011	ES2327328	ES2404239	ES2423038
	Unit	EQL	ANZG (2018) Aquatic ecosystems DGV- highly disturbed (90%) freshwater	**NEPM (2013) Table 1A(4) Comm/Ind HSL D Vapour Intrusion, Sand (2m-4m)**	**NHMRC (2008) Primary Contact Recreation - Health**								
PAHs													
Acenaphthene	µg/L	1			**5,300**$^{\#15}$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	µg/L	1	0.4$^{\#6}$		**18,000**$^{\#15}$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	µg/L	0.5	0.2$^{\#6}$		**0.1**$^{\#13}$	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j+k)fluoranthene	µg/L	2				-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	µg/L	1	1.4$^{\#6}$		**8,000**$^{\#15}$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	µg/L	1			**2,900**$^{\#15}$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-c,d)pyrene	µg/L	1				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	µg/L	1	37$^{\#5}$	**NL** $^{\#1}$	**700**$^{\#20}$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (VOC)	µg/L	5				-	-	-	<5	-	-	-	<5
Phenanthrene	µg/L	1	2$^{\#6}$			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	µg/L	1			**1,200**$^{\#15}$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene TEQ (Zero)	µg/L	0.5			**0.1**$^{\#21}$	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ	µg/L	5			**0.1**$^{\#21}$	-	-	-	-	-	-	-	-
Total Positive PAHs	µg/L	1				-	-	-	-	-	-	-	-
Phenols													
2-Methylphenol	µg/L	1			**9,300**$^{\#15}$	<1.0	-	-	-	<1.0	-	-	-
2-Nitrophenol	µg/L	1				<1.0	-	-	-	<1.0	-	-	-
2,4-Dimethylphenol	µg/L	1	2$^{\#11}$		**3,600**$^{\#15}$	<1.0	-	-	-	<1.0	-	-	-
3-&4-Methylphenol (m&p-cresol)	µg/L	2				<2.0	-	-	-	<2.0	-	-	-
4-Chloro-3-methylphenol	µg/L	1			**14,000**$^{\#15}$	<1.0	-	-	-	<1.0	-	-	-
Phenol	µg/L	1	600$^{\#5}$		**58,000**$^{\#15}$	<1.0	-	-	-	<1.0	-	-	-
Halogenated Phenols													
2,4,5-Trichlorophenol	µg/L	1			**12,000**$^{\#15}$	<1.0	-	-	-	<1.0	-	-	-
2,4,6-Trichlorophenol	µg/L	1	20$^{\#6}$		**200**$^{\#13}$	<1.0	-	-	-	<1.0	-	-	-
2,4-Dichlorophenol	µg/L	1	160$^{\#6}$		**2,000**$^{\#13}$	<1.0	-	-	-	<1.0	-	-	-
2,6-Dichlorophenol	µg/L	1	34$^{\#11}$			<1.0	-	-	-	<1.0	-	-	-
2-Chlorophenol	µg/L	1	490$^{\#6}$		**3,000**$^{\#13}$	<1.0	-	-	-	<1.0	-	-	-
Pentachlorophenol	µg/L	2	10$^{\#6}$		**100**$^{\#13}$	<2.0	-	-	-	<2.0	-	-	-

Comments
#1 Value for shallow (2-4 m bgl) sand aquifer adopted for initial screening.
#2 ANZG (2018). The more conservative value (Arsenic AsV) out of the available arsenic species was adopted for initial screening purpo
#3 ANZG (2018). Adjust DGVs for site-specific hardness using the hardness-dependent algorithm in Warne et al. (2018)
#4 ANZG (2018). Chromium CrIII adopted for initial screening purposes.
#5 ANZG (2018)
#6 ANZG (2018). Higher species protection level adopted as recommended
#7 Derived by NZ NIWA (2013) using ANZECC (2000) methodology. ANZECC (2000) value was withdrawn due to calculation errors.
#8 CRWB (2019). Lowest of values for gasoline (C4-C12) and diesel (C8-C21) range hydrocarbons.
#9 CRWB (2019). Value for diesel (C8-C21) mixture.
#10 CRWB (2019). Value for diesel (C8-C21) mixture. No value derived for TPH >C21 as not considered soluble; diesel value used for s
#11 ANZG (2018). Unknown species protection level
#12 NHMRC (2008)
#13 NHMRC (2011) - Health. Multiplied by a factor of x10
#14 NHMRC (2011) - Health. Guideline for Cr (VI) conservatively adopted for comparision to total chromium. Speciated analysis should l
#15 USEPA Tap Water RSL (TR=1E-06; THQ=0.1) - May 2024. Multiplied by a factor of x10
#16 NHMRC (2011) - Health. Converted from guideline for nitrate (as nitrate). Multiplied by a factor of x10
#17 NHMRC (2011) - Health. Converted from guideline for nitrite (as nitrite). Multiplied by a factor of x10
#18 WHO (2008). Lowest derived value for aliphatic and aromatic fractions in this range. Multiplied by a factor of x10
#19 Lowest derived value for aliphatic and aromatic fractions in this range (90 ug/L). Multiplied by a factor of x10
#20 NHMRC (2011) - Health. Derived as per NHMRC (2011) based on TDI used for NEPM HSL derivation. Multiplied by a factor of x10
#21 NHMRC (2011) - Health. Value is for BaP but applies to TEQ. Multiplied by a factor of x10

Appendix A: OEMP Inspections

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	01.08.23
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	N/A	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	N/A	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	N/A	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	N/A	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	N/A	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	N/A	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	N/A	
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	N/A	

12. Biodiversity ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a 'Hazard Report'				
Actions required	**Action assigned to**	**Date assigned**	**Date to be completed**	**Signature**

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	01.09.23
Inspection Completed By:	M.Stewart	**Signature:**	M.P.Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	N/A	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	N/A	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	N/A	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	N/A	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	N/A	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	N/A	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	N/A	
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	N/A	

12. Biodiversity ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a 'Hazard Report'

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	03.10.23
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	N/A	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	N/A	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	N/A	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	N/A	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	N/A	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	N/A	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	N/A	
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	N/A	

12. Biodiversity ☐ N/A		Frequency	Y/N/NA	General Comments
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a 'Hazard Report'

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	01.11.23
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	N/A	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	N/A	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	N/A	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	N/A	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	N/A	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	N/A	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	N/A	
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	N/A	

12. Biodiversity ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a ‘Hazard Report’

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	01.12.23
Inspection Completed By:	M.Stewart	**Signature:**	M.P.Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	N/A	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	N/A	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	N/A	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	N/A	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	N/A	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	N/A	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	N/A	
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	N/A	

12. Biodiversity ☐ N/A		Frequency	Y/N/NA	General Comments
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a ‘Hazard Report’				
Actions required	**Action assigned to**	**Date assigned**	**Date to be completed**	**Signature**

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	08.01.24
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	N/A	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	N/A	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	N/A	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	N/A	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	N/A	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	N/A	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations	☐ **N/A**	**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	N/A	
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	N/A	

12. Biodiversity	☐ **N/A**	**Frequency**	**Y/N/NA**	**General Comments**
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a 'Hazard Report'

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	01.02.24
Inspection Completed By:	M.Stewart	**Signature:**	M. P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	N/A	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	N/A	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	N/A	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	N/A	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	N/A	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	N/A	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations	☐ **N/A**	**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	N/A	
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	N/A	

12. Biodiversity	☐ **N/A**	**Frequency**	**Y/N/NA**	**General Comments**
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a 'Hazard Report'				
Actions required	**Action assigned to**	**Date assigned**	**Date to be completed**	**Signature**

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	20.02.24
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	N/A	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	N/A	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	N/A	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	N/A	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	N/A	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	N/A	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	N/A	
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	N/A	

12. Biodiversity ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a ‘Hazard Report’

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	01.03.24
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	N/A	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	N/A	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	N/A	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	N/A	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	N/A	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	N/A	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	N/A	
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	N/A	

12. Biodiversity ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a ‘Hazard Report’				
Actions required	**Action assigned to**	**Date assigned**	**Date to be completed**	**Signature**

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	29.03.24
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	Y	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	Y	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	Y	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	Y	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	Y	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	Y	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	Y Dec 2022	Lift grate,brush out lip for grate and down walls remove debris replace grate
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	Y Dec 2022	Inspected no action required

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	Y Dec 2022	Check Basket – no litter
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	Y Dec 2022	Empty tank inspect no sign of pests
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	Y Dec 2022	No repairs required
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	Y Dec 2022	Checked no action required

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	Y Dec 2022	Fully stocked and in good condition
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	Y Dec 2022	

12. Biodiversity ☐ N/A		Frequency	Y/N/NA	General Comments
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	Y Dec 2022	

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Action Plan - to be transferred as a 'Hazard Report'

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	30.04.24
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	Y	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	Y	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	Y	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	Y	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	Y	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	Y	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
9.1	Are defective plant parked up and not being used?	As required	N/A	

10. Waste management mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)		
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly		

12. Biodiversity ☐ N/A		Frequency	Y/N/NA	General Comments
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a ‘Hazard Report’

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	30.11.22
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	Y	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	Y	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	Y	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	Y	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	Y	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	Y	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	N/A	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)		
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly		

12. Biodiversity ☐ **N/A**		**Frequency**	**Y/N/NA**	**General Comments**
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a 'Hazard Report'				
Actions required	**Action assigned to**	**Date assigned**	**Date to be completed**	**Signature**

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	28.06.24
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	Y	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	Y	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	Y	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	Y	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	Y	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	Y	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
9.1	Are defective plant parked up and not being used?	As required	N/A	

10. Waste management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)		
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly		

12. Biodiversity ☐ N/A		Frequency	Y/N/NA	General Comments
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a 'Hazard Report'

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	28.06.24
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	Y	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	Y	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	Y	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	Y	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	Y	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	Y	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	Y Dec 2022	Lift grate,brush out lip for grate and down walls remove debris replace grate
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	Y Dec 2022	Inspected no action required

5. Stormwater mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	Y Dec 2022	Check Basket – no litter
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	Y Dec 2022	Empty tank inspect no sign of pests
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	Y Dec 2022	No repairs required
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	Y Dec 2022	Checked no action required

6. Vermin and pest management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
9.1	Are defective plant parked up and not being used?	As required	Y	

10. Waste management mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	Y Dec 2022	Fully stocked and in good condition
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	Y Dec 2022	

12. Biodiversity ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	Y Dec 2022	

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Action Plan - to be transferred as a 'Hazard Report'				
Actions required	**Action assigned to**	**Date assigned**	**Date to be completed**	**Signature**

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	30.07.24
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	Y	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	Y	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	Y	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	Y	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	Y	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	Y	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	Y	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	Y	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	Y	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	N/A	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	Y	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	Y	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	Y	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	Y	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	Y	
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	N/A	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	N/A	
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	N/A	
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	N/A	
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	N/A	

6. Vermin and pest management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	Y	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	Y	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	Y	

7. Pollution management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	Y	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	Y	

8. Fire management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	Y	

9. Noise and vibration mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
9.1	Are defective plant parked up and not being used?	As required	N/A	

10. Waste management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	Y	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	Y	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	Y	

11. Flooding mitigations ☐ N/A		Frequency	Y/N/NA	General Comments
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)		
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly		

12. Biodiversity ☐ N/A		Frequency	Y/N/NA	General Comments
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	N/A	

Action Plan - to be transferred as a 'Hazard Report'

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

Appendix B: Field Sheets

Monitoring Round: S20102_06 Feb 2023

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW2		
Arrival Date/Time	06/02/2023 09:54AM	**Departure Date/Time**	08/02/2023 09:04AM
Executed By	Bec Chapple		
Weather	Sunny		
Comments			

Well Information

Gatic Type	New
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Hayley Yellowlees
Date Checked	09 Aug 2024 03:04 PM

Groundwater Data

Well	MW2	**Date/Time**	06/02/2023 09:54AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.96	**Well Depth (mbTOC)**	7.59
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW2	**Date/Time**	08/02/2023 08:31AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.957	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	08/02/2023 08:43AM
Well	MW2
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW2

Purge Method	
Sample Method	Hydrasleeve
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)	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	
Water Depth at end of Sampling (m)	3.122

Field Chemistry

	EC (Field)	**pH (Field)**	**Redox (Field)**	**Dissolved Oxygen (Field)**	**Temp (Field)**
Time	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
08:42AM	21545	6.33	154.4	1.35	20.8
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: S20102_06 Feb 2023

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW4		
Arrival Date/Time	06/02/2023 10:07AM	**Departure Date/Time**	08/02/2023 10:44AM
Executed By	Bec Chapple		
Weather	Sunny		
Comments			

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Hayley Yellowlees
Date Checked	09 Aug 2024 03:05 PM

Groundwater Data

Well	MW4	**Date/Time**	06/02/2023 10:08AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.205	**Well Depth (mbTOC)**	6.99
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW4	**Date/Time**	08/02/2023 10:24AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.224	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	08/02/2023 10:38AM
Well	MW4
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW4

Purge Method	
Sample Method	Hydrasleeve
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)	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	
Water Depth at end of Sampling (m)	2.554

Field Chemistry

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
10:37AM	17881	6.54	69	0	22.7
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: S20102_06 Feb 2023

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW6		
Arrival Date/Time	06/02/2023 10:19AM	**Departure Date/Time**	08/02/2023 11:09AM
Executed By	Bec Chapple		
Weather	Sunny		
Comments	Stick up well		

Well Information

Gatic Type	Stick up
Key Type	None
Well Condition	Average

Authorisation

Checked By	Hayley Yellowlees
Date Checked	09 Aug 2024 03:05 PM

Groundwater Data

Well	MW6	**Date/Time**	06/02/2023 10:19AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	4.444	**Well Depth (mbTOC)**	7.19
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW6	**Date/Time**	08/02/2023 10:52AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	4.444	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	08/02/2023 10:53AM
Well	MW6
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW6

Purge Method	
Sample Method	Hydrasleeve
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)	light brown
Sample Odour (Description)	no 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	
Water Depth at end of Sampling (m)	4.446

Field Chemistry

	EC (Field)	**pH (Field)**	**Redox (Field)**	**Dissolved Oxygen (Field)**	**Temp (Field)**
Time	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
10:53AM	2323	7.19	89.8	0.1	22.7
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: S20102_06 Feb 2023

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW3		
Arrival Date/Time	06/02/2023 10:30AM	**Departure Date/Time**	08/02/2023 10:10AM
Executed By	Bec Chapple		
Weather	Sunny		
Comments			

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Hayley Yellowlees
Date Checked	09 Aug 2024 03:06 PM

Groundwater Data

Well	MW3	**Date/Time**	06/02/2023 10:31AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.971	**Well Depth (mbTOC)**	8.08
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW3	**Date/Time**	08/02/2023 09:37AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.945	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	08/02/2023 09:44AM
Well	MW3
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW3

Purge Method	
Sample Method	Hydrasleeve
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)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	QC101
QA Sample ID (2)	QC201
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)	3.3

Field Chemistry

	EC (Field)	**pH (Field)**	**Redox (Field)**	**Dissolved Oxygen (Field)**	**Temp (Field)**
Time	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
09:45AM	29765	5.78	65.7	0.79	23.6
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.

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW1		
Arrival Date/Time	06/02/2023 10:37AM	**Departure Date/Time**	08/02/2023 09:26AM
Executed By	Bec Chapple		
Weather	Sunny		
Comments	No x-cap in place.		

Well Information

Gatic Type	New
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Hayley Yellowlees
Date Checked	09 Aug 2024 03:06 PM

Groundwater Data

Well	MW1	**Date/Time**	06/02/2023 10:41AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.145	**Well Depth (mbTOC)**	6.61
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW1	**Date/Time**	08/02/2023 09:05AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.111	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	08/02/2023 09:06AM
Well	MW1
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW1

Purge Method	
Sample Method	Hydrasleeve
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)	orange
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Suspended sediments

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)	2.163

Field Chemistry

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
09:06AM	22382	6.47	28.3	2.02	22.4
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: S20102_10 Feb 2023 _1

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	SW2		
Arrival Date/Time	10/02/2023 08:16AM	**Departure Date/Time**	10/02/2023 08:17AM
Executed By	Bec Chapple		
Weather	Sunny		
Comments			

Authorisation

Checked By	Hayley Yellowlees
Date Checked	09 Aug 2024 03:07 PM

Sample Data

Sampled Date/Time	10/02/2023 08:17AM
Field ID	SW2
Sample Depth From (m)	
Sample Depth To	
Sample Type	Normal
Sample Comments	
Matrix Type	Water

Sample Observations (purge end)

Sample Colour (Description)	light brown
Sample Odour (Description)	no 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)	

Field Chemistry

Temp	22.2 oC (-)
DO	3.85 mg/L (-)
EC	365.7 uS/cm (-)
pH	7.04 - (-)
Redox	215.3 mV (-)

Monitoring Round: S20102_10 Feb 2023 _1

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	SW1		
Arrival Date/Time	10/02/2023 08:40AM	**Departure Date/Time**	10/02/2023 08:42AM
Executed By	Bec Chapple		
Weather	Sunny		
Comments			

Authorisation

Checked By	Hayley Yellowlees
Date Checked	09 Aug 2024 03:07 PM

Sample Data

Sampled Date/Time	10/02/2023 08:42AM
Field ID	SW1
Sample Depth From (m)	
Sample Depth To	
Sample Type	Normal
Sample Comments	
Matrix Type	Water

Sample Observations (purge end)

Sample Colour (Description)	light brown
Sample Odour (Description)	no 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)

Field Chemistry

Temp	21.8 oC (-)
DO	4.23 mg/L (-)
EC	196.2 uS/cm (-)
pH	7.54 - (-)
Redox	219.6 mV (-)

Monitoring Round: S20102_02 Aug 2023

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW6		
Arrival Date/Time	02/08/2023 10:33AM	**Departure Date/Time**	14/08/2023 04:01PM
Executed By	Hayley Yellowlees		
Weather	Sunny		
Comments			

Well Information

Gatic Type	monument
Key Type	None
Well Condition	Good

Authorisation

Checked By	Bec Chapple
Date Checked	15 Aug 2023 02:15 PM

Groundwater Data

Well	MW6	**Date/Time**	02/08/2023 10:34AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	4.748	**Well Depth (mbTOC)**	7.17
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	14/08/2023 03:42PM
Well	MW6
Matrix Type	Water
Equipment ID	
Sample Comments	Pale yellow, slightly sulphurous, yellow/orange sediment in bottom of hydrasleeve.
Field ID (Primary)	MW6

Purge Method	
Sample Method	Snap Sampler
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)	yellow
Sample Odour (Description)	sulphurous 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	
Water Depth at end of Sampling (m)	4.825

Field Chemistry

	Standing Water Level	**EC (Field)**	**pH (Field)**	**Redox (Field)**	**Dissolved Oxygen (Field)**	**Temp (Field)**
Time	**m bTOC**	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
03:41PM	4.765	1362	7.22	-6.4	0.81	16.8
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: S20102_02 Aug 2023

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW3		
Arrival Date/Time	02/08/2023 11:03AM	**Departure Date/Time**	14/08/2023 04:46PM
Executed By	Hayley Yellowlees		
Weather	Sunny		
Comments			

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	15 Aug 2023 02:21 PM

Groundwater Data

Well	MW3	**Date/Time**	02/08/2023 11:04AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.599	**Well Depth (mbTOC)**	8.07
Product Depth (mbTOC)			
Comments & Product Description	Hydrasleeves installed x2		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	14/08/2023 04:13PM
Well	MW3
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW3
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)	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	
Water Depth at end of Sampling (m)	3.985

Field Chemistry

	Standing Water Level	**EC (Field)**	**pH (Field)**	**Redox (Field)**	**Dissolved Oxygen (Field)**	**Temp (Field)**
Time	**m bTOC**	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
04:13PM	3.425	24992	5.91	62.6	0.92	15.9
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: S20102_02 Aug 2023

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW1		
Arrival Date/Time	02/08/2023 11:26AM	**Departure Date/Time**	14/08/2023 01:34PM
Executed By	Hayley Yellowlees		
Weather	Overcast		
Comments	No x-cap. PVC too close to the gatic.		

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	15 Aug 2023 02:23 PM

Groundwater Data

Well	MW1	**Date/Time**	02/08/2023 11:28AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.634	**Well Depth (mbTOC)**	6.61
Product Depth (mbTOC)			
Comments & Product Description	Hydra sleeve installed		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	14/08/2023 01:17PM
Well	MW1
Matrix Type	Water
Equipment ID	
Sample Comments	Orange sediment at bottom of hydrasleeve
Field ID (Primary)	MW01

Purge Method	
Sample Method	Snap Sampler
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)	colourless, orange
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	
Water Depth at end of Sampling (m)	2.575

Field Chemistry

	Standing Water Level	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	m bTOC	uS/cm	pH Units	mV	mg/L	° C
01:17PM	2.575	19738	6.34	116.4	6.33	17
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: S20102_02 Aug 2023

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW2		
Arrival Date/Time	02/08/2023 11:43AM	**Departure Date/Time**	14/08/2023 02:38PM
Executed By	Hayley Yellowlees		
Weather	Overcast		
Comments	Ants nest in top of well		

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	15 Aug 2023 02:36 PM

Groundwater Data

Well	MW2	**Date/Time**	02/08/2023 11:43AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.19	**Well Depth (mbTOC)**	7.57
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	14/08/2023 02:22PM
Well	MW2
Matrix Type	Water
Equipment ID	
Sample Comments	Orange sediment in bottom of hydrasleeve
Field ID (Primary)	MW2

Purge Method	
Sample Method	Snap Sampler
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)	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	
Water Depth at end of Sampling (m)	3.484

Field Chemistry

	Standing Water Level	**EC (Field)**	**pH (Field)**	**Redox (Field)**	**Dissolved Oxygen (Field)**	**Temp (Field)**
Time	**m bTOC**	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
02:22PM	3.155	17006	6.44	129	1.2	17
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: S20102_02 Aug 2023

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW4		
Arrival Date/Time	02/08/2023 11:59AM	**Departure Date/Time**	14/08/2023 03:36PM
Executed By	Hayley Yellowlees		
Weather	Overcast		
Comments			

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	15 Aug 2023 02:36 PM

Groundwater Data

Well	MW4	**Date/Time**	02/08/2023 12:01PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.565	**Well Depth (mbTOC)**	6.98
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	14/08/2023 03:26PM
Well	MW4
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW4

Purge Method	
Sample Method	Snap Sampler
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)	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	
Water Depth at end of Sampling (m)	2.925

Field Chemistry

	Standing Water Level	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	m bTOC	uS/cm	pH Units	mV	mg/L	° C
03:25PM	2.62	7133	6.55	18.7	1.7	17.1
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: S20102_07 Feb 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW6		
Arrival Date/Time	07/02/2024 11:21AM	**Departure Date/Time**	09/02/2024 11:26AM
Executed By	Rowan Faint		
Weather	Sunny		
Comments	Stick up. Hydrasleeve installed		

Well Information

Gatic Type	Stick up
Key Type	None
Well Condition	Good

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:19 PM

Groundwater Data

Well	MW6	**Date/Time**	07/02/2024 11:22AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	4.369	**Well Depth (mbTOC)**	7.16
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW6	**Date/Time**	07/02/2024 11:30AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	4.36	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After hydrasleeve deployment		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW6	**Date/Time**	09/02/2024 11:08AM

Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	4.357	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	Before hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW6	**Date/Time**	09/02/2024 11:09AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	4.46	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	09/02/2024 11:25AM
Well	MW6
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW6

Purge Method	
Sample Method	Hydrasleeve
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)	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	
Water Depth at end of Sampling (m)	

Field Chemistry

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
11:25AM	2204	7.41	56.6	5.3	22.5
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: S20102_07 Feb 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW4		
Arrival Date/Time	07/02/2024 11:55AM	**Departure Date/Time**	14/02/2024 02:45PM
Executed By	Rowan Faint		
Weather	Sunny		
Comments	Well head flooded on arrival. Hydrasleeve installed. First hydrasleeve got lost down the well. Install new one on 9/2/24		

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:21 PM

Groundwater Data

Well	MW4	**Date/Time**	07/02/2024 11:57AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.65	**Well Depth (mbTOC)**	6.98
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW4	**Date/Time**	07/02/2024 12:06PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.635	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After hydrasleeve deployment		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW4	**Date/Time**	09/02/2024 02:34PM

Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.49	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After installing replacement hydrasleeve		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW4	**Date/Time**	09/02/2024 11:43AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.53	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	Before hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW4	**Date/Time**	14/02/2024 02:17PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.77	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	Post hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	14/02/2024 02:34PM
Well	MW4
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW4

Purge Method	
Sample Method	Hydrasleeve
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)	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	
Water Depth at end of Sampling (m)	

Field Chemistry

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
02:35PM	19817	6.66	-11.2	3.8	29.6
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.

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW1		
Arrival Date/Time	07/02/2024 12:28PM	**Departure Date/Time**	09/02/2024 10:52AM
Executed By	Rowan Faint		
Weather	Sunny		
Comments	No well cap. Hydrasleeve installed		

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:21 PM

Groundwater Data

Well	MW1	**Date/Time**	07/02/2024 12:32PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.25	**Well Depth (mbTOC)**	6.605
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW1	**Date/Time**	07/02/2024 12:38PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.25	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After hydrasleeve deployment		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW1	**Date/Time**	09/02/2024 10:30AM

Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.235	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	Before hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)

Product Confirmed by Bailer No

Well	MW1	**Date/Time**	09/02/2024 10:40AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.39	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)

Product Confirmed by Bailer No

Sample Data

Sampled Date/Time	09/02/2024 10:50AM
Well	MW1
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW1

Purge Method	
Sample Method	Hydrasleeve
Waste Disposal	

Purge Observations (purge start)

Purge Colour (Description)	
Purge Odour (Description)	
Purge Sheen (Description)	no sheen
Purge Turbidity (Description)	

Sample Observations (purge end)

Sample Colour (Description)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Suspended sediments

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

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
10:50AM	25870	6.66	38.1	3.07	22.3
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: S20102_07 Feb 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW3		
Arrival Date/Time	07/02/2024 01:03PM	**Departure Date/Time**	09/02/2024 10:17AM
Executed By	Rowan Faint		
Weather	Sunny		
Comments	Two hydrasleeves installed		

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:22 PM

Groundwater Data

Well	MW3	**Date/Time**	07/02/2024 01:03PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.18	**Well Depth (mbTOC)**	8.05
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW3	**Date/Time**	07/02/2024 01:13PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.15	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After hydrasleeve deployment		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW3	**Date/Time**	09/02/2024 09:24AM

Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.175	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	Before hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW3	**Date/Time**	09/02/2024 09:35AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.78	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	09/02/2024 09:37AM
Well	MW3
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW3

Purge Method	
Sample Method	Hydrasleeve
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)	light brown
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	QC103
QA Sample ID (2)	QC203
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

	EC (Field)	**pH (Field)**	**Redox (Field)**	**Dissolved Oxygen (Field)**	**Temp (Field)**
Time	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
09:36AM	34645	6.5	1.5	2.11	23.5
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: S20102_07 Feb 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	SW1		
Arrival Date/Time	07/02/2024 01:30PM	**Departure Date/Time**	07/02/2024 01:43PM
Executed By	Rowan Faint		
Weather	Sunny		
Comments			

Well Information

Gatic Type	
Key Type	
Well Condition	

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:23 PM

Sample Data

Sampled Date/Time	07/02/2024 01:43PM
Well	
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	SW1

Purge Method	
Sample Method	Grab
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)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Suspended sediments

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

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
01:42PM	574	7.51	101.6	4.67	23.9
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: S20102_07 Feb 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	SW2		
Arrival Date/Time	07/02/2024 02:28PM	**Departure Date/Time**	07/02/2024 02:36PM
Executed By	Rowan Faint		
Weather	Sunny		
Comments			

Well Information

Gatic Type	
Key Type	
Well Condition	

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:24 PM

Sample Data

Sampled Date/Time	07/02/2024 02:29PM
Well	
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	SW2

Purge Method	
Sample Method	Grab
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)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Suspended sediments

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

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
02:29PM	656	7.7	81	4.19	25
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: S20102_07 Feb 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW2		
Arrival Date/Time	07/02/2024 02:37PM	**Departure Date/Time**	09/02/2024 01:52PM
Executed By	Rowan Faint		
Weather	Sunny		
Comments			

Well Information

Gatic Type	Old
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:24 PM

Groundwater Data

Well	MW2	**Date/Time**	07/02/2024 02:37PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.01	**Well Depth (mbTOC)**	7.575
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW2	**Date/Time**	07/02/2024 02:43PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After hydrasleeve deployment		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW2	**Date/Time**	09/02/2024 01:31PM

Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.97	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	Before hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW2	**Date/Time**	09/02/2024 01:37PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.27	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description	After hydrasleeve sampling		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	09/02/2024 01:51PM
Well	MW2
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW2

Purge Method	
Sample Method	Hydrasleeve
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)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Suspended sediments

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

	EC (Field)	**pH (Field)**	**Redox (Field)**	**Dissolved Oxygen (Field)**	**Temp (Field)**
Time	**uS/cm**	**pH Units**	**mV**	**mg/L**	**° C**
01:51PM	27224	6.59	92.7	3.05	23.2
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: S20102_09 Jul 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	SW1		
Arrival Date/Time	09/07/2024 08:40AM	**Departure Date/Time**	09/07/2024 09:17AM
Executed By	Rowan Faint		
Weather	Light rain		
Comments			

Well Information

Gatic Type	
Key Type	
Well Condition	

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:11 PM

Sample Data

Sampled Date/Time	09/07/2024 09:16AM
Well	
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	SW1

Purge Method	
Sample Method	Grab
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)	light brown, light grey
Sample Odour (Description)	no 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	
Water Depth at end of Sampling (m)	

Field Chemistry

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
09:15AM	334	7.08	38	6.3	13.6
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: S20102_09 Jul 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	SW2		
Arrival Date/Time	09/07/2024 09:54AM	**Departure Date/Time**	09/07/2024 10:01AM
Executed By	Rowan Faint		
Weather	Overcast		
Comments			

Well Information

Gatic Type	
Key Type	
Well Condition	

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:12 PM

Sample Data

Sampled Date/Time	09/07/2024 09:55AM
Well	
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	SW2

Purge Method	
Sample Method	Grab
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)	light grey
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	
Water Depth at end of Sampling (m)	

Field Chemistry

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
09:54AM	370.4	8.48	-18	6.09	13.7
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: S20102_09 Jul 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW2		
Arrival Date/Time	09/07/2024 10:09AM	**Departure Date/Time**	11/07/2024 02:47PM
Executed By	Rowan Faint		
Weather	Overcast		
Comments			

Well Information

Gatic Type	New
Key Type	8mm hex key
Well Condition	Good

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:13 PM

Groundwater Data

Well	MW2	**Date/Time**	09/07/2024 10:10AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.577	**Well Depth (mbTOC)**	7.58
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW2	**Date/Time**	11/07/2024 02:29PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.555	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	11/07/2024 02:36PM
Well	MW2
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW2

Purge Method	
Sample Method	Hydrasleeve
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)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Suspended sediments

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

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
02:36PM	23588	6.45	-17.6	1.42	18.2
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: S20102_09 Jul 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW4		
Arrival Date/Time	09/07/2024 10:47AM	**Departure Date/Time**	11/07/2024 03:15PM
Executed By	Rowan Faint		
Weather	Overcast		
Comments	Gatic flooded		

Well Information

Gatic Type	New
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:14 PM

Groundwater Data

Well	MW4	**Date/Time**	09/07/2024 10:47AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.325	**Well Depth (mbTOC)**	6.795
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW4	**Date/Time**	11/07/2024 02:59PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.31	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	11/07/2024 03:09PM
Well	MW4
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW4

Purge Method	
Sample Method	Hydrasleeve
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)	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	
Water Depth at end of Sampling (m)	

Field Chemistry

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
03:08PM	14807	6.64	-58.7	1.29	18.4
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: S20102_09 Jul 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW6		
Arrival Date/Time	09/07/2024 11:01AM	**Departure Date/Time**	11/07/2024 03:35PM
Executed By	Rowan Faint		
Weather	Overcast		
Comments			

Well Information

Gatic Type	Stick up
Key Type	None
Well Condition	Good

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:15 PM

Groundwater Data

Well	MW6	**Date/Time**	09/07/2024 11:02AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.565	**Well Depth (mbTOC)**	7.16
Product Depth (mbTOC)			
Comments & Product Description	Brown silt on IP		
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW6	**Date/Time**	11/07/2024 03:23PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	3.557	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	11/07/2024 03:34PM
Well	MW6
Matrix Type	Water
Equipment ID	
Sample Comments	Insufficient sample remaining for water quality parameters
Field ID (Primary)	MW6

Purge Method	
Sample Method	Hydrasleeve
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)	colourless
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Suspended sediments

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: S20102_09 Jul 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW3		
Arrival Date/Time	09/07/2024 11:17AM	**Departure Date/Time**	11/07/2024 04:22PM
Executed By	Rowan Faint		
Weather	Overcast		
Comments			

Well Information

Gatic Type	New
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:16 PM

Groundwater Data

Well	MW3	**Date/Time**	09/07/2024 11:33AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.88	**Well Depth (mbTOC)**	8.05
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW3	**Date/Time**	11/07/2024 04:16PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	2.875	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	11/07/2024 04:17PM
Well	MW3
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW3

Purge Method	
Sample Method	Hydrasleeve
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)	light brown
Sample Odour (Description)	no odour
Sample Sheen (Description)	no sheen
Sample Turbidity (Description)	Slightly turbid

QA Samples

QA Sample ID (1)	QC104
QA Sample ID (2)	QC204
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

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
04:17PM	28201	5.86	15	2.2	18.3
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: S20102_09 Jul 2024

Location Visit

Site ID	S20102	**Monitoring Zone**	
Location Code	MW1		
Arrival Date/Time	09/07/2024 11:47AM	**Departure Date/Time**	11/07/2024 04:54PM
Executed By	Rowan Faint		
Weather	Overcast		
Comments			

Well Information

Gatic Type	New
Key Type	8mm hex key
Well Condition	Average

Authorisation

Checked By	Bec Chapple
Date Checked	09 Aug 2024 01:16 PM

Groundwater Data

Well	MW1	**Date/Time**	09/07/2024 11:55AM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	1.93	**Well Depth (mbTOC)**	6.61
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Well	MW1	**Date/Time**	11/07/2024 04:40PM
Measurement Method	Dip	**Dry**	No
Water Depth (mbTOC)	1.925	**Well Depth (mbTOC)**	
Product Depth (mbTOC)			
Comments & Product Description			
Equipment ID			
Sediment Thickness (m)			
Depth to Water with Pump (m)			

gauging

Well Head PID (PPM)	
Product Confirmed by Bailer	No

Sample Data

Sampled Date/Time	11/07/2024 04:41PM
Well	MW1
Matrix Type	Water
Equipment ID	
Sample Comments	
Field ID (Primary)	MW1

Purge Method	
Sample Method	Hydrasleeve
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)	light brown
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	
Water Depth at end of Sampling (m)	

Field Chemistry

	EC (Field)	pH (Field)	Redox (Field)	Dissolved Oxygen (Field)	Temp (Field)
Time	uS/cm	pH Units	mV	mg/L	° C
04:40PM	22394	6.27	-58	1.06	17.5
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 C: Calibration Certificates

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration
Interface Meter
Heron H.Oil

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	Heron H.Oil Interface Meter (30m)
Serial Number	01-7967
Client Name	Bec Chapple (Senversa)
Project Number	S20102

Instrument Check			
Item	Test	Test Passed	Comments
9V Battery	Klein Tools MM300 Multimeter	✓	Battery voltage reading above 7.9V
Battery Box	Check	✓	No damage
Face and Back Plates	Check	✓	No damage
Thumb Screws	Check	✓	Rubber ends intact
Tape Hangar/Protector	Check	✓	No damage
On/Off Button	Operation	✓	Button is functional
Buzzer	Operation	✓	Intermittent tone in H_2O, solid tone in product
LED Signal Light	Operation	✓	LED light functional – green and red
Probe	Operation/Check	✓	Decontaminated, cleaned and tested
Tape	Condition/Check	✓	Decontaminated and cleaned, no damage
Connection	Check	✓	Probe and link connected correctly and tightly
PCB	Operation	✓	Unit is fully functional
Electronics Panel	Orientation	✓	Correctly aligned

Instrument Readings		
Product	Buzzer	LED Light
H_2O	Intermittent	Blinking – Red
Petroleum	Solid	Steady – Red

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The interface meter was decontaminated, cleaned and tested with a mixture of tap water and petrol, shielded from ambient light.

Checked By	William Pak
Calibration Date	01/02/2023
Calibration Due	01/08/2023

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration

Water Quality Meter

YSI Professional Plus

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	YSI Professional Plus Water Quality Meter w/ 1m Quatro Cable
Serial Number	21A102654
Client Name	Bec Chapple (Senversa)
Project Number	S20102
Comments	-

Instrument Check

Item	Test	Test Passed	Comments
2 x Alkaline C-size Batteries	Klein Tools MM300 Multimeter	✓	Both batteries reading above 2.9V
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage
Firmware	Version	✓	4.0.0
pH Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
pH millivolts for pH 7.00	Calibration	✓	pH 7.00 calibration range between 0 mV ± 50 mV
pH millivolts for pH 4.00	Calibration	✓	pH 4 mV range +165 to +180 from 7 buffer mV value
pH slope	Calibration	✓	Range between 55 to 60 mV/pH (ideal value 59 mV)
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
ORP Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
ORP Reading	Calibration	✓	Within ± 80 mV of reference Zobell Reading
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
Conductivity/Temp Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
Conductivity Cell	Calibration	✓	Conductivity cell constant 5.0 ± 1.0 in GLP file
Clean Sensor Readings	Calibration	✓	Clean sensor reads less than 3 uS/cm in dry air
Dissolved Oxygen Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
DO Cap	Condition/Calibration	✓	1.25 mil PE membrane (yellow membrane)
DO Sensor in Use	Condition	✓	Polarographic DO sensor
DO Sensor Value	Calibration	✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA

Instrument Readings

Parameter	Standard Used	Reference No.	Calibration Value	Observed	Actual	Units
Temperature	Centre 370 Thermometer	Room Temp.	26.6	26.5	26.6	°C
pH	pH 4.00	386466	4.01	4.04	4.01	pH
pH	pH 7.00	387329	7.00	6.96	7.00	pH
Conductivity	2760 µs/cm at 25°C	388521	2760	2797	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	380835/382785	229.9	223.8	229.9	mV
Zero Dissolved O_2	$NaSO_3$ in Distilled H_2O	389912	0.0	0.3	0.0	%
100% Dissolved O_2	100% Air Saturated H_2O	Fresh Air	100.0	108.1	100.0	%

7Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	William Pak
Calibration Date	01/02/2023
Calibration Due	01/08/2023

Certificate of Service and Calibration

Interface Meter

Heron H.Oil

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	Heron H.Oil Interface Meter (60m)
Serial Number	01-8640
Client Name	Bec Chapple (Senversa)
Project Number	S20102

Instrument Check

Item	Test	Test Passed	Comments
9V Battery	Klein Tools MM300 Multimeter	✓	Battery voltage reading above 7.9V
Battery Box	Check	✓	No damage
Face and Back Plates	Check	✓	No damage
Thumb Screws	Check	✓	Rubber ends intact
Tape Hangar/Protector	Check	✓	No damage
On/Off Button	Operation	✓	Button is functional
Buzzer	Operation	✓	Intermittent tone in H_2O, solid tone in product
LED Signal Light	Operation	✓	LED light functional – green and red
Probe	Operation/Check	✓	Decontaminated, cleaned and tested
Tape	Condition/Check	✓	Decontaminated and cleaned, no damage
Connection	Check	✓	Probe and link connected correctly and tightly
PCB	Operation	✓	Unit is fully functional
Electronics Panel	Orientation	✓	Correctly aligned

Instrument Readings

Product	Buzzer	LED Light
H_2O	Intermittent	Blinking – Red
Petroleum	Solid	Steady – Red

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The interface meter was decontaminated, cleaned and tested with a mixture of tap water and petrol, shielded from ambient light.

Checked By	William Pak
Calibration Date	30/07/2023
Calibration Due	30/01/2024

Certificate of Service and Calibration

Water Quality Meter

YSI Professional Plus

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	YSI Pro Plus Water Quality Meter w/ 1m Quatro Cable
Serial Number	20B122031
Client Name	Hayley Yellowlees/Chris Redford (Senversa)
Project Number	S20049
Comments	-

Instrument Check

Item	Test	Test Passed	Comments
2 x Alkaline C-size Batteries	Klein Tools MM300 Multimeter	✓	Both batteries reading above 2.9V
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage
Firmware	Version	✓	4.0.0
pH Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
pH millivolts for pH 7.00	Calibration	✓	pH 7.00 calibration range between 0 mV ± 50 mV
pH millivolts for pH 4.00	Calibration	✓	pH 4 mV range +165 to +180 from 7 buffer mV value
pH slope	Calibration	✓	Range between 55 to 60 mV/pH (ideal value 59 mV)
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
ORP Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
ORP Reading	Calibration	✓	Within ± 80 mV of reference Zobell Reading
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
Conductivity/Temp Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
Conductivity Cell	Calibration	✓	Conductivity cell constant 5.0 ± 1.0 in GLP file
Clean Sensor Readings	Calibration	✓	Clean sensor reads less than 3 uS/cm in dry air
Dissolved Oxygen Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
DO Cap	Condition/Calibration	✓	1.25 mil PE membrane (yellow membrane)
DO Sensor in Use	Condition	✓	Polarographic DO sensor
DO Sensor Value	Calibration	✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA

Instrument Readings

Parameter	Standard Used	Reference No.	Calibration Value	Observed	Actual	Units
Temperature	Centre 370 Thermometer	Room Temp.	14.2	14.6	14.2	°C
pH	pH 4.00	386466	4.01	4.05	4.01	pH
pH	pH 7.00	387329	7.00	7.07	7.00	pH
Conductivity	2760 µs/cm at 25°C	388521	2760	2629	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	380835/382785	253.2	259.6	253.2	mV
Zero Dissolved O_2	$NaSO_3$ in Distilled H_2O	389912	0.0	0.1	0.0	%
100% Dissolved O_2	100% Air Saturated H_2O	Fresh Air	100.0	100.4	100.0	%

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	William Pak
Calibration Date	14/08/2023
Calibration Due	14/02/2024

Certificate of Service and Calibration

Water Quality Meter

YSI Professional Plus

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	YSI Pro Quatro Water Quality Meter w/ 1m Quatro Cable
Serial Number	21A102654
Client Name	Rowan Faint (Senversa)
Project Number	S20102
Comments	-

Instrument Check

Item	Test	Test Passed	Comments
2 x Alkaline C-size Batteries	Klein Tools MM300 Multimeter	✓	Both batteries reading above 2.9V
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage
Firmware	Version	✓	4.0.0
pH Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
pH millivolts for pH 7.00	Calibration	✓	pH 7.00 calibration range between 0 mV ± 50 mV
pH millivolts for pH 4.00	Calibration	✓	pH 4 mV range +165 to +180 from 7 buffer mV value
pH slope	Calibration	✓	Range between 55 to 60 mV/pH (ideal value 59 mV)
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
ORP Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
ORP Reading	Calibration	✓	Within ± 80 mV of reference Zobell Reading
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
Conductivity/Temp Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
Conductivity Cell	Calibration	✓	Conductivity cell constant 5.0 ± 1.0 in GLP file
Clean Sensor Readings	Calibration	✓	Clean sensor reads less than 3 uS/cm in dry air
Dissolved Oxygen Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
DO Cap	Condition/Calibration	✓	1.25 mil PE membrane (yellow membrane)
DO Sensor in Use	Condition	✓	Polarographic DO sensor
DO Sensor Value	Calibration	✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA

Instrument Readings

Parameter	Standard Used	Reference No.	Calibration Value	Observed	Actual	Units
Temperature	Centre 370 Thermometer	Room Temp.	27.7	28.1	27.7	°C
pH	pH 4.00	386466	4.01	4.05	4.01	pH
pH	pH 7.00	387329	7.00	7.02	7.00	pH
Conductivity	2760 µs/cm at 25°C	388521	2760	2589	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	380835/382785	225.3	230.1	225.3	mV
Zero Dissolved O_2	$NaSO_3$ in Distilled H_2O	389912	0.0	-0.1	0.0	%
100% Dissolved O_2	100% Air Saturated H_2O	Fresh Air	100.0	93.7	100.0	%

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	William Pak
Calibration Date	31/01/2024
Calibration Due	31/07/2024

Your water and air monitoring equipment specialists

Certificate of Service and Calibration

Interface Meter

Heron H.Oil

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	Heron H.Oil Interface Meter (30m)
Serial Number	01-8895
Client Name	Rowan Faint (Senversa)
Project Number	S20102

Instrument Check

Item	Test	Test Passed	Comments
9V Battery	Klein Tools MM300 Multimeter	✓	Battery voltage reading above 7.9V
Battery Box	Check	✓	No damage
Face and Back Plates	Check	✓	No damage
Thumb Screws	Check	✓	Rubber ends intact
Tape Hangar/Protector	Check	✓	No damage
On/Off Button	Operation	✓	Button is functional
Buzzer	Operation	✓	Intermittent tone in H_2O, solid tone in product
LED Signal Light	Operation	✓	LED light functional – green and red
Probe	Operation/Check	✓	Decontaminated, cleaned and tested
Tape	Condition/Check	✓	Decontaminated and cleaned, no damage
Connection	Check	✓	Probe and link connected correctly and tightly
PCB	Operation	✓	Unit is fully functional
Electronics Panel	Orientation	✓	Correctly aligned

Instrument Readings

Product	Buzzer	LED Light
H_2O	Intermittent	Blinking – Red
Petroleum	Solid	Steady – Red

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The interface meter was decontaminated, cleaned and tested with a mixture of tap water and petrol, shielded from ambient light.

Checked By	William Pak
Calibration Date	31/01/2024
Calibration Due	31/07/2024

Certificate of Service and Calibration

Water Quality Meter

YSI Professional Plus

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	YSI Pro Quatro Water Quality Meter w/ 1m Quatro Cable
Serial Number	21A102654
Client Name	Rowan Faint (Senversa)
Project Number	S20102
Comments	-

Instrument Check

Item	Test	Test Passed	Comments
2 x Alkaline C-size Batteries	Klein Tools MM300 Multimeter	✓	Both batteries reading above 2.9V
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage
Firmware	Version	✓	4.0.0
pH Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
pH millivolts for pH 7.00	Calibration	✓	pH 7.00 calibration range between 0 mV ± 50 mV
pH millivolts for pH 4.00	Calibration	✓	pH 4 mV range +165 to +180 from 7 buffer mV value
pH slope	Calibration	✓	Range between 55 to 60 mV/pH (ideal value 59 mV)
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
ORP Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
ORP Reading	Calibration	✓	Within ± 80 mV of reference Zobell Reading
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
Conductivity/Temp Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
Conductivity Cell	Calibration	✓	Conductivity cell constant 5.0 ± 1.0 in GLP file
Clean Sensor Readings	Calibration	✓	Clean sensor reads less than 3 uS/cm in dry air
Dissolved Oxygen Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
DO Cap	Condition/Calibration	✓	1.25 mil PE membrane (yellow membrane)
DO Sensor in Use	Condition	✓	Polarographic DO sensor
DO Sensor Value	Calibration	✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA

Instrument Readings

Parameter	Standard Used	Reference No.	Calibration Value	Pre-Cal Value	Post-Cal Value	Units
Temperature	Centre 370 Therm.	Room Temp.	15.0	14.7	15.0	°C
pH	pH 4.00	417183	4.01	4.05	4.01	pH
pH	pH 7.00	419528	7.00	6.93	7.00	pH
Conductivity	2760 µs/cm at 25°C	399819	2760	2750	2760	µs/cm
ORP	Zobell A & B	420448/418958	251.0	260.3	251.0	mV
Zero Dissolved O_2	$NaSO_3$ in Distilled H_2O	426184	0.0	0.5	0.0	%
100% Dissolved O_2	100% Air Saturated H_2O	Fresh Air	100.0	93.9	100.0	%

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	William Pak
Calibration Date	27/06/2024
Calibration Due	27/12/2024

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration

Interface Meter

Heron H.Oil

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	Heron H.Oil Interface Meter (30m)
Serial Number	01-09486
Client Name	Rowan Faint (Senversa)
Project Number	S20102

Instrument Check

Item	Test	Test Passed	Comments
9V Battery	Klein Tools MM300 Multimeter	✓	Battery voltage reading above 7.9V
Battery Box	Check	✓	No damage
Face and Back Plates	Check	✓	No damage
Thumb Screws	Check	✓	Rubber ends intact
Tape Hangar/Protector	Check	✓	No damage
On/Off Button	Operation	✓	Button is functional
Buzzer	Operation	✓	Intermittent tone in H_2O, solid tone in product
LED Signal Light	Operation	✓	LED light functional – green and red
Probe	Operation/Check	✓	Decontaminated, cleaned and tested
Tape	Condition/Check	✓	Decontaminated and cleaned, no damage
Connection	Check	✓	Probe and link connected correctly and tightly
PCB	Operation	✓	Unit is fully functional
Electronics Panel	Orientation	✓	Correctly aligned

Instrument Readings

Product	Buzzer	LED Light
H_2O	Intermittent	Blinking – Red
Petroleum	Solid	Steady – Red

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The interface meter was decontaminated, cleaned and tested with a mixture of tap water and petrol, shielded from ambient light.

Checked By	William Pak
Calibration Date	27/06/2024
Calibration Due	27/12/2024

Appendix D: Quality Assessment / Quality Control

Data Validation Checklist

Job Number:	S20102
Report Title:	Surface Water and Groundwater Monitoring
Client:	ReDirect Recycling
Completed By:	Bec Chapple
Date:	9-Aug-24
Verified By:	Emma Walsh
Date:	11-Sep-24

SAMPLE DELIVERY GROUP (SDG):	ES2304342	SAMPLE DELIVERY GROUP (SDG):	ES2304011
Laboratory:	ALS	**Laboratory:**	ALS
Sample Dates:	10-Feb-23	**Sample Dates:**	8-Feb-23
Sample Media:	Water	**Sample Media:**	Water

Quality Assurance Process	Objectives & Measure	Acceptance Criteria	Source of Information	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Standard Procedures	Standard field sampling procedures and forms used	No deviation from standard procedure and forms used.	Borelogs, field sheets, COCs, data tables	Yes		Yes	
Equipment Calibration	All equipment calibrated in accordance with manufacturers specifications	All equipment calibrated in accordance with manufacturers specifications.	Calibration Certificates / Records	Yes		Yes	
Testing Method Accreditation	NATA accredited methods used for all analyses determined	Primary and secondary laboratories to use NATA accredited methods for all analytes determined.	Laboratory Report	Yes		Yes	
Quality Control Sampling Frequency	Field QC sampling frequency in accordance with AS4482.1-2005	Field (Intra-laboratory) Duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2304011.	Yes	QC101
		Secondary (inter-laboratory) duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 316159.	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 316159.
		Rinsate Blanks - ≥ 1 per day, per matrix per equipment.	QA/QC register (within field book)	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2304011.	Yes	QC301
		Trip Blanks - ≥ 1 per esky containing samples for volatiles.	QA/QC register (within field book)	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2304011.	Yes	QC401
	Laboratory QC analysis frequency in accordance with NEPC 2013	Laboratory Duplicates - at least 1 in 10 analyses or 1 per process batch.	Laboratory Reports	No	A laboratory duplicate for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.	No	A laboratory duplicate for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.
		Method Blanks - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Surrogate Recoveries - all samples spiked where appropriate (e.g. chromatographic analysis of organics).	Laboratory Reports	Yes		Yes	
		Laboratory Control Samples - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Matrix Spikes - at least 1 per matrix type per process batch.	Laboratory Reports	No	A matrix spike for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.	No	A matrix spike for PAH/Phenols, dissolved metals and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenol, dissolved metals and TRH semivolatile fraction and were DQI compliant.
Sample Preservation, Handling and Holding Times	Samples appropriately preserved upon collection, stored and transported, and analysed within holding times	In accordance with laboratory specific method requirements. Unless specific method indicates otherwise, soil and water samples should be stored, transported and received by the laboratory at < 6°C.	Laboratory Reports	Yes		Yes	
Data Management	No errors in data transcription	Entry of field data verified by peer.	10% check of electronically imported data (e.g. ESDAT). 100% check of manually entered data (e.g. field parameters, gauging data).	Yes		Yes	
Data Useability	Limits of reporting less than investigation levels	Limits of reporting less than relevant investigation levels.	Results Tables	Yes		Yes	

Quality Control Process	Objectives & Measure	Acceptance Criteria	How? (i.e. ESDAT output, review lab reports, review data etc)	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Field (Intra-laboratory) Duplicate Sampling and Analysis	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 precision level of precision.	Analysed for same chemicals as primary sample. RPD <30% of mean conc. where both conc. >20 x LOR RPD <50% of mean conc. where both conc. 10-20 x LOR RPD No limit where both conc. < 10 x LOR	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2304011.	Yes	
Secondary Inter-laborator) Duplicate Sampling and Analysis	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 conc. where both conc. >20 x LOR. RPD <50% of mean conc. where both conc. 10-20 x LOR. RPD no limit where both conc. < 10 x LOR.	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 316159.	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 316159.
Field Rinsate Blank Preparation & Analysis	Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2304011.	Yes	
Trip Blank Sampling and Analysis	Cross contamination between samples does not occur in transit or as an artefact of the sampling handling procedure.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2304011.	Yes	
Laboratory Duplicates	Laboratory duplicates are used to test the precision of the laboratory measurements.	As specified by laboratory.	Laboratory reports	Yes		Yes	
Laboratory Control Samples	Laboratory control samples (LCS) are used to assess overall method performance. In general these samples are similar in composition to environmental samples, and contain known amounts of the analytes of interest.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Certified Reference Material	CRM samples are used to monitor the accuracy of analyses performed by the laboratory.	As specified by laboratory (generally dynamic recovery limits). Usually not performed and assessed based on LCS results.	Laboratory reports	N/A		N/A	
Surrogate Recovery	Surrogates are organic compounds that are similar in chemical composition to analytes of interest and are spiked into environmental samples prior to sample preparation and analysis. Surrogate recoveries are used to evaluate matrix interference on a sample-specific basis.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Matrix Spike Recovery	A matrix spike is an aliquot of a sample spiked with a known concentration of target analyte(s). Spiking occurs prior to sample preparation and analysis, and the results are used to assess the bias of a method in a given sample matrix.	Recovery 70 - 130% or dynamic limits if specified by laboratory.	Laboratory reports	Yes		No	Mattix spike recovery not determined for manganese and nitrite as N as the background level greater than or equal to 4x spike level.
Laboratory Method Blanks	Method blanks are prepared to represent the sample matrix as closely as possible and prepared/extracted/digested and analysed exactly like field samples. These blanks are used by the laboratory to assess contamination introduced during sample preparation activities.	Analyte concentrations below LORs.	Laboratory reports	Yes		Yes	
Potentially Anomalous Data	No discrepancies between field, laboratory and/or expected results are identified	Analytical results are internally consistent, consistent with field measurements, and consistent with expected and/or historical results based on CSM	Multiple sources	Yes		Yes	

Data Validation Checklist

Job Number:	S20102
Report Title:	Surface Water and Groundwater Monitoring
Client:	ReDirect Recycling
Completed By:	Bec Chapple
Date:	9-Aug-24
Verified By:	Emma Walsh
Date:	11-Sep-24

SAMPLE DELIVERY GROUP (SDG):	316159	SAMPLE DELIVERY GROUP (SDG):	ES2326328
Laboratory:	Envirolab	Laboratory:	ALS
Sample Dates:	8-Feb-23	Sample Dates:	14-Aug-23
Sample Media:	Water	Sample Media:	Water

Quality Assurance Process	Objectives & Measure	Acceptance Criteria	Source of Information	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Standard Procedures	Standard field sampling procedures and forms used	No deviation from standard procedure and forms used.	Borelogs, field sheets, COCs, data tables	Yes		Yes	
Equipment Calibration	All equipment calibrated in accordance with manufacturers specifications	All equipment calibrated in accordance with manufacturers specifications.	Calibration Certificates / Records	Yes		Yes	
Testing Method Accreditation	NATA accredited methods used for all analyses determined	Primary and secondary laboratories to use NATA accredited methods for all analytes determined.	Laboratory Report	Yes		Yes	
Quality Control Sampling Frequency	Field QC sampling frequency in accordance with AS4482.1-2005	Field (Intra-laboratory) Duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	N/A	Primary laboratory received sample	Yes	QC102
		Secondary (inter-laboratory) duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	Yes	QC201	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1020195.
		Rinsate Blanks - ≥ 1 per day, per matrix per equipment.	QA/QC register (within field book)	N/A	Primary laboratory received sample	Yes	QC302
		Trip Blanks - ≥ 1 per esky containing samples for volatiles.	QA/QC register (within field book)	N/A	Primary laboratory received sample	Yes	QC502
	Laboratory QC analysis frequency in accordance with NEPC 2013	Laboratory Duplicates - at least 1 in 10 analyses or 1 per process batch.	Laboratory Reports	Yes		No	A laboratory duplicate for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.
		Method Blanks - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Surrogate Recoveries - all samples spiked where appropriate (e.g. chromatographic analysis of organics).	Laboratory Reports	Yes		Yes	
		Laboratory Control Samples - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Matrix Spikes - at least 1 per matrix type per process batch.	Laboratory Reports	Yes		No	A matrix spike for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.
Sample Preservation, Handling and Holding Times	Samples appropriately preserved upon collection, stored and transported, and analysed within holding times	In accordance with laboratory specific method requirements. Unless specific method indicates otherwise, soil and water samples should be stored, transported and received by the laboratory at < 6°C.	Laboratory Reports	No	Holding times for svTRH (C10-C40) and PAHs in inter-laboratory duplicate sample were non-conforming. Not considered to impact results since primary sample and intra-laboratory samples, analysed within holding time, reported svTRH and PAH <LOR. Therefore very low concentrations expected.	Yes	
Data Management	No errors in data transcription	Entry of field data verified by peer.	10% check of electronically imported data (e.g. ESDAT). 100% check of manually entered data (e.g. field parameters, gauging data).	Yes		Yes	
Data Useability	Limits of reporting less than investigation levels	Limits of reporting less than relevant investigation levels.	Results Tables	Yes		Yes	

Quality Control Process	Objectives & Measure	Acceptance Criteria	How? (i.e. ESDAT output, review lab reports, review data etc)	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Field (Intra-laboratory) Duplicate Sampling and Analysis	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 precision level of precision.	Analysed for same chemicals as primary sample. RPD <30% of mean conc. where both conc. >20 x LOR RPD <50% of mean conc. where both conc. 10-20 x LOR RPD No limit where both conc. < 10 x LOR	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	N/A	Primary laboratory received sample	No	RPD exceeded for Zinc (49%) in primary sample MW3 and duplicate sample QC102. Both results above adopted assessment criteria, therefore does not alter interpretation of results.
Secondary Inter-laborator) Duplicate Sampling and Analysis	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 conc. where both conc. >20 x LOR. RPD <50% of mean conc. where both conc. 10-20 x LOR. RPD no limit where both conc. < 10 x LOR.	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	No	RPD exceeded for Phosporous (148%) in primary sample MW3 and triplicate sample QC201. No adopted assessment criteria for total phosphorus in groundwater, therefore does not impact upon interpretation of results.	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1020195.
Field Rinsate Blank Preparation & Analysis	Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A	Primary laboratory received sample	Yes	
Trip Blank Sampling and Analysis	Cross contamination between samples does not occur in transit or as an artefact of the sampling handling procedure.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A	Primary laboratory received sample	No	QC302 was reported above LOR for Manganese (0.038 mg/L). This is not seen to impact on the data as this concentration is much lower than the adopted criterion.
Laboratory Duplicates	Laboratory duplicates are used to test the precision of the laboratory measurements.	As specified by laboratory.	Laboratory reports	Yes		Yes	
Laboratory Control Samples	Laboratory control samples (LCS) are used to assess overall method performance. In general these samples are similar in composition to environmental samples, and contain known amounts of the analytes of interest.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Certified Reference Material	CRM samples are used to monitor the accuracy of analyses performed by the laboratory.	As specified by laboratory (generally dynamic recovery limits). Usually not performed and assessed based on LCS results.	Laboratory reports	N/A		N/A	
Surrogate Recovery	Surrogates are organic compounds that are similar in chemical composition to analytes of interest and are spiked into environmental samples prior to sample preparation and analysis. Surrogate recoveries are used to evaluate matrix interference on a sample-specific basis.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Matrix Spike Recovery	A matrix spike is an aliquot of a sample spiked with a known concentration of target analyte(s). Spiking occurs prior to sample preparation and analysis, and the results are used to assess the bias of a method in a given sample matrix.	Recovery 70 - 130% or dynamic limits if specified by laboratory.	Laboratory reports	Yes		Yes	
Laboratory Method Blanks	Method blanks are prepared to represent the sample matrix as closely as possible and prepared/extracted/digested and analysed exactly like field samples. These blanks are used by the laboratory to assess contamination introduced during sample preparation activities.	Analyte concentrations below LORs.	Laboratory reports	Yes		Yes	
Potentially Anomalous Data	No discrepancies between field, laboratory and/or expected results are identified	Analytical results are internally consistent, consistent with field measurements, and consistent with expected and/or historical results based on CSM	Multiple sources	Yes		Yes	

Data Validation Checklist

Job Number:	S20102
Report Title:	Surface Water and Groundwater Monitoring
Client:	ReDirect Recycling
Completed By:	Bec Chapple
Date:	9-Aug-24
Verified By:	Emma Walsh
Date:	11-Sep-24

SAMPLE DELIVERY GROUP (SDG):	1020195	SAMPLE DELIVERY GROUP (SDG):	ES2403942
Laboratory:	Eurofins	**Laboratory:**	ALS
Sample Dates:	14-Aug-23	**Sample Dates:**	15-Feb-24
Sample Media:	Water	**Sample Media:**	Water

Quality Assurance Process	Objectives & Measure	Acceptance Criteria	Source of Information	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Standard Procedures	Standard field sampling procedures and forms used	No deviation from standard procedure and forms used.	Borelogs, field sheets, COCs, data tables	Yes		Yes	
Equipment Calibration	All equipment calibrated in accordance with manufacturers specifications	All equipment calibrated in accordance with manufacturers specifications.	Calibration Certificates / Records	Yes		Yes	
Testing Method Accreditation	NATA accredited methods used for all analyses determined	Primary and secondary laboratories to use NATA accredited methods for all analytes determined.	Laboratory Report	Yes		Yes	
Quality Control Sampling Frequency	Field QC sampling frequency in accordance with AS4482.1-2005	Field (Intra-laboratory) Duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	N/A	Primary laboratory received sample	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2404239.
		Secondary (inter-laboratory) duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	Yes	QC202	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1067666.
		Rinsate Blanks - ≥ 1 per day, per matrix per equipment.	QA/QC register (within field book)	N/A	Primary laboratory received sample	N/A	Rinsate not required as only surface water was collected straight into the bottles
		Trip Blanks - ≥ 1 per esky containing samples for volatiles.	QA/QC register (within field book)	N/A	Primary laboratory received sample	Yes	QC403
	Laboratory QC analysis frequency in accordance with NEPC 2013	Laboratory Duplicates - at least 1 in 10 analyses or 1 per process batch.	Laboratory Reports	Yes		No	A laboratory duplicate for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.
		Method Blanks - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Surrogate Recoveries - all samples spiked where appropriate (e.g. chromatographic analysis of organics).	Laboratory Reports	Yes		Yes	
		Laboratory Control Samples - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Matrix Spikes - at least 1 per matrix type per process batch.	Laboratory Reports	Yes		No	A matrix spike for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.
Sample Preservation, Handling and Holding Times	Samples appropriately preserved upon collection, stored and transported, and analysed within holding times	In accordance with laboratory specific method requirements. Unless specific method indicates otherwise, soil and water samples should be stored, transported and received by the laboratory at < 6°C.	Laboratory Reports	Yes		Yes	
Data Management	No errors in data transcription	Entry of field data verified by peer.	10% check of electronically imported data (e.g. ESDAT). 100% check of manually entered data (e.g. field parameters, gauging data).	Yes		Yes	
Data Useability	Limits of reporting less than investigation levels	Limits of reporting less than relevant investigation levels.	Results Tables	Yes		Yes	

Quality Control Process	Objectives & Measure	Acceptance Criteria	How? (i.e. ESDAT output, review lab reports, review data etc)	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Field (Intra-laboratory) Duplicate Sampling and Analysis	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 precision level of precision.	Analysed for same chemicals as primary sample. RPD <30% of mean conc. where both conc. >20 x LOR RPD <50% of mean conc. where both conc. 10-20 x LOR RPD No limit where both conc. < 10 x LOR	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	N/A	Primary laboratory received sample	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2404239.
Secondary Inter-laborator) Duplicate Sampling and Analysis	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 conc. where both conc. >20 x LOR. RPD <50% of mean conc. where both conc. 10-20 x LOR. RPD no limit where both conc. < 10 x LOR.	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	No	RPD exceedance for iron (84%) and zinc (35%) in primary sample in MW3 and triplicate sample QC202. Both zinc results above adopted assessment criteria, and no adopted assessment criteria for iron, therefore does not alter interpretation of results.	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1067666.
Field Rinsate Blank Preparation & Analysis	Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A	Primary laboratory received sample	N/A	Rinsate not required as only surface water was collected straight into the bottles
Trip Blank Sampling and Analysis	Cross contamination between samples does not occur in transit or as an artefact of the sampling handling procedure.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A	Primary laboratory received sample	Yes	
Laboratory Duplicates	Laboratory duplicates are used to test the precision of the laboratory measurements.	As specified by laboratory.	Laboratory reports	Yes		Yes	
Laboratory Control Samples	Laboratory control samples (LCS) are used to assess overall method performance. In general these samples are similar in composition to environmental samples, and contain known amounts of the analytes of interest.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Certified Reference Material	CRM samples are used to monitor the accuracy of analyses performed by the laboratory.	As specified by laboratory (generally dynamic recovery limits). Usually not performed and assessed based on LCS results.	Laboratory reports	N/A		N/A	
Surrogate Recovery	Surrogates are organic compounds that are similar in chemical composition to analytes of interest and are spiked into environmental samples prior to sample preparation and analysis. Surrogate recoveries are used to evaluate matrix interference on a sample-specific basis.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Matrix Spike Recovery	A matrix spike is an aliquot of a sample spiked with a known concentration of target analyte(s). Spiking occurs prior to sample preparation and analysis, and the results are used to assess the bias of a method in a given sample matrix.	Recovery 70 - 130% or dynamic limits if specified by laboratory.	Laboratory reports	Yes		No	Mattix spike recovery not determined for zinc, nitrite and nitrate as N and total phosphorus as the background level greater than or equal to 4x spike level. An ananymous sample was used from a different project and therefore this is not expected to impact the accuracy of the results
Laboratory Method Blanks	Method blanks are prepared to represent the sample matrix as closely as possible and prepared/extracted/digested and analysed exactly like field samples. These blanks are used by the laboratory to assess contamination introduced during sample preparation activities.	Analyte concentrations below LORs.	Laboratory reports	Yes		Yes	
Potentially Anomalous Data	No discrepancies between field, laboratory and/or expected results are identified	Analytical results are internally consistent, consistent with field measurements, and consistent with expected and/or historical results based on CSM	Multiple sources	Yes		Yes	

Data Validation Checklist

Job Number:	S20102
Report Title:	Surface Water and Groundwater Monitoring
Client:	ReDirect Recycling
Completed By:	Bec Chapple
Date:	9-Aug-24
Verified By:	Emma Walsh
Date:	11-Sep-24

SAMPLE DELIVERY GROUP (SDG):	ES2404239	SAMPLE DELIVERY GROUP (SDG):	ES2404752
Laboratory:	ALS	Laboratory:	ALS
Sample Dates:	15-Feb-24	Sample Dates:	20-Feb-24
Sample Media:	Water	Sample Media:	Water

Quality Assurance Process	Objectives & Measure	Acceptance Criteria	Source of Information	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Standard Procedures	Standard field sampling procedures and forms used	No deviation from standard procedure and forms used.	Borelogs, field sheets, COCs, data tables	Yes		Yes	
Equipment Calibration	All equipment calibrated in accordance with manufacturers specifications	All equipment calibrated in accordance with manufacturers specifications.	Calibration Certificates / Records	Yes		Yes	
Testing Method Accreditation	NATA accredited methods used for all analyses determined	Primary and secondary laboratories to use NATA accredited methods for all analytes determined.	Laboratory Report	Yes		Yes	
Quality Control Sampling Frequency	Field QC sampling frequency in accordance with AS4482.1-2005	Field (Intra-laboratory) Duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	Yes	QC103	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2304011.
		Secondary (inter-laboratory) duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1067666.	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1067666.
		Rinsate Blanks - ≥ 1 per day, per matrix per equipment.	QA/QC register (within field book)	Yes	QC303	N/A	Rinsate not required as only one sample collected using hydrasleeves- dedicated sampling equipment for the day
		Trip Blanks - ≥ 1 per esky containing samples for volatiles.	QA/QC register (within field book)	Yes	QC404	N/A	No blank required due to limited number of samples (only MW4)
	Laboratory QC analysis frequency in accordance with NEPC 2013	Laboratory Duplicates - at least 1 in 10 analyses or 1 per process batch.	Laboratory Reports	No	A laboratory duplicate for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.	No	A laboratory duplicate for PAH/Phenols, TRH-Semivolatile fraction and dissolved mercury was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.
		Method Blanks - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Surrogate Recoveries - all samples spiked where appropriate (e.g. chromatographic analysis of organics).	Laboratory Reports	Yes		Yes	
		Laboratory Control Samples - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Matrix Spikes - at least 1 per matrix type per process batch.	Laboratory Reports	No	A matrix spike for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.	No	A matrix spike for PAH/Phenols, TRH-Semivolatile fraction and dissolved metals was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.
Sample Preservation, Handling and Holding Times	Samples appropriately preserved upon collection, stored and transported, and analysed within holding times	In accordance with laboratory specific method requirements. Unless specific method indicates otherwise, soil and water samples should be stored, transported and received by the laboratory at < 6°C.	Laboratory Reports	Yes		Yes	
Data Management	No errors in data transcription	Entry of field data verified by peer.	10% check of electronically imported data (e.g. ESDAT). 100% check of manually entered data (e.g. field parameters, gauging data).	Yes		Yes	
Data Useability	Limits of reporting less than investigation levels	Limits of reporting less than relevant investigation levels.	Results Tables	Yes		Yes	

Quality Control Process	Objectives & Measure	Acceptance Criteria	How? (i.e. ESDAT output, review lab reports, review data etc)	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Field (Intra-laboratory) Duplicate Sampling and Analysis	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 precision level of precision.	Analysed for same chemicals as primary sample.	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	Yes		N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2304011.
		RPD <30% of mean conc. where both conc. >20 x LOR					
		RPD <50% of mean conc. where both conc. 10-20 x LOR					
		RPD No limit where both conc. < 10 x LOR					
Secondary Inter-laborator) Duplicate Sampling and Analysis	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.	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1067666.	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1067666.
		RPD <30% of mean conc. where both conc. >20 x LOR.					
		RPD <50% of mean conc. where both conc. 10-20 x LOR.					
		RPD no limit where both conc. < 10 x LOR.					
Field Rinsate Blank Preparation & Analysis	Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	No	Total phosphorus (as P) was above the LOR. Not seen as a significant impact to results as no adopted assessment criteria for phosphorus in groundwater.	N/A	Rinsate not required as only one sample collected using hydrasleeves- dedicated sampling equipment for the day
Trip Blank Sampling and Analysis	Cross contamination between samples does not occur in transit or as an artefact of the sampling handling procedure.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	Yes		N/A	No blank required due to limited number of samples (only MW4)
Laboratory Duplicates	Laboratory duplicates are used to test the precision of the laboratory measurements.	As specified by laboratory.	Laboratory reports	Yes		Yes	
Laboratory Control Samples	Laboratory control samples (LCS) are used to assess overall method performance. In general these samples are similar in composition to environmental samples, and contain known amounts of the analytes of interest.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Certified Reference Material	CRM samples are used to monitor the accuracy of analyses performed by the laboratory.	As specified by laboratory (generally dynamic recovery limits). Usually not performed and assessed based on LCS results.	Laboratory reports	N/A		N/A	
Surrogate Recovery	Surrogates are organic compounds that are similar in chemical composition to analytes of interest and are spiked into environmental samples prior to sample preparation and analysis. Surrogate recoveries are used to evaluate matrix interference on a sample-specific basis.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Matrix Spike Recovery	A matrix spike is an aliquot of a sample spiked with a known concentration of target analyte(s). Spiking occurs prior to sample preparation and analysis, and the results are used to assess the bias of a method in a given sample matrix.	Recovery 70 - 130% or dynamic limits if specified by laboratory.	Laboratory reports	No	Mattix spike recovery not determined for ammonia (as N) as the background level greater than or equal to 4x spike level. An ananymous sample was used from a different project and therefore this is not expected to impact the accuracy of the results	No	Mattix spike recovery not determined for manganese as the background level greater than or equal to 4x spike level. An ananymous sample was used from a different project and therefore this is not expected to impact the accuracy of the results
Laboratory Method Blanks	Method blanks are prepared to represent the sample matrix as closely as possible and prepared/extracted/digested and analysed exactly like field samples. These blanks are used by the laboratory to assess contamination introduced during sample preparation activities.	Analyte concentrations below LORs.	Laboratory reports	Yes		Yes	
Potentially Anomalous Data	No discrepancies between field, laboratory and/or expected results are identified	Analytical results are internally consistent, consistent with field measurements, and consistent with expected and/or historical results based on CSM	Multiple sources	Yes		Yes	

Data Validation Checklist

Job Number:	S20102
Report Title:	Surface Water and Groundwater Monitoring
Client:	ReDirect Recycling
Completed By:	Bec Chapple
Date:	9-Aug-24
Verified By:	Emma Walsh
Date:	11-Sep-24

SAMPLE DELIVERY GROUP (SDG):	1067666	SAMPLE DELIVERY GROUP (SDG):	ES2422553
Laboratory:	Eurofins	**Laboratory:**	ALS
Sample Dates:	12-Feb-24	**Sample Dates:**	16-Jul-24
Sample Media:	Water	**Sample Media:**	Water

Quality Assurance Process	Objectives & Measure	Acceptance Criteria	Source of Information	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Standard Procedures	Standard field sampling procedures and forms used	No deviation from standard procedure and forms used.	Borelogs, field sheets, COCs, data tables	Yes		Yes	
Equipment Calibration	All equipment calibrated in accordance with manufacturers specifications	All equipment calibrated in accordance with manufacturers specifications.	Calibration Certificates / Records	Yes		Yes	
Testing Method Accreditation	NATA accredited methods used for all analyses determined	Primary and secondary laboratories to use NATA accredited methods for all analytes determined.	Laboratory Report	Yes		Yes	
Quality Control Sampling Frequency	Field QC sampling frequency in accordance with AS4482.1-2005	Field (Intra-laboratory) Duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	N/A	Primary laboratory received sample	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2423038.
		Secondary (inter-laboratory) duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	Yes	QC203	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1117968.
		Rinsate Blanks - ≥ 1 per day, per matrix per equipment.	QA/QC register (within field book)	N/A	Primary laboratory received sample	N/A	Rinsate not required as only surface water was collected straight into the bottles
		Trip Blanks - ≥ 1 per esky containing samples for volatiles.	QA/QC register (within field book)	N/A	Primary laboratory received sample	Yes	QC405
	Laboratory QC analysis frequency in accordance with NEPC 2013	Laboratory Duplicates - at least 1 in 10 analyses or 1 per process batch.	Laboratory Reports	Yes		No	A laboratory duplicate for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.
		Method Blanks - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Surrogate Recoveries - all samples spiked where appropriate (e.g. chromatographic analysis of organics).	Laboratory Reports	Yes		Yes	
		Laboratory Control Samples - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Matrix Spikes - at least 1 per matrix type per process batch.	Laboratory Reports	Yes		No	A matrix spike for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.
Sample Preservation, Handling and Holding Times	Samples appropriately preserved upon collection, stored and transported, and analysed within holding times	In accordance with laboratory specific method requirements. Unless specific method indicates otherwise, soil and water samples should be stored, transported and received by the laboratory at < 6°C.	Laboratory Reports	Yes		Yes	
Data Management	No errors in data transcription	Entry of field data verified by peer.	10% check of electronically imported data (e.g. ESDAT). 100% check of manually entered data (e.g. field parameters, gauging data).	Yes		Yes	
Data Useability	Limits of reporting less than investigation levels	Limits of reporting less than relevant investigation levels.	Results Tables	Yes		Yes	

Quality Control Process	Objectives & Measure	Acceptance Criteria	How? (i.e. ESDAT output, review lab reports, review data etc)	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Field (Intra-laboratory) Duplicate Sampling and Analysis	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 precision level of precision.	Analysed for same chemicals as primary sample. RPD <30% of mean conc. where both conc. >20 x LOR RPD <50% of mean conc. where both conc. 10-20 x LOR RPD No limit where both conc. < 10 x LOR	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	N/A	Primary laboratory received sample	N/A	Relevant intra-laboratory QC samples for this WME reported in batch ES2423038.
Secondary Inter-laborator) Duplicate Sampling and Analysis	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 conc. where both conc. >20 x LOR. RPD <50% of mean conc. where both conc. 10-20 x LOR. RPD no limit where both conc. < 10 x LOR.	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	Yes		N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1117968.
Field Rinsate Blank Preparation & Analysis	Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A	Primary laboratory received sample	N/A	Rinsate not required as only surface water was collected straight into the bottles
Trip Blank Sampling and Analysis	Cross contamination between samples does not occur in transit or as an artefact of the sampling handling procedure.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A	Primary laboratory received sample	Yes	
Laboratory Duplicates	Laboratory duplicates are used to test the precision of the laboratory measurements.	As specified by laboratory.	Laboratory reports	Yes		Yes	
Laboratory Control Samples	Laboratory control samples (LCS) are used to assess overall method performance. In general these samples are similar in composition to environmental samples, and contain known amounts of the analytes of interest.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Certified Reference Material	CRM samples are used to monitor the accuracy of analyses performed by the laboratory.	As specified by laboratory (generally dynamic recovery limits). Usually not performed and assessed based on LCS results.	Laboratory reports	N/A		N/A	
Surrogate Recovery	Surrogates are organic compounds that are similar in chemical composition to analytes of interest and are spiked into environmental samples prior to sample preparation and analysis. Surrogate recoveries are used to evaluate matrix interference on a sample-specific basis.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Matrix Spike Recovery	A matrix spike is an aliquot of a sample spiked with a known concentration of target analyte(s). Spiking occurs prior to sample preparation and analysis, and the results are used to assess the bias of a method in a given sample matrix.	Recovery 70 - 130% or dynamic limits if specified by laboratory.	Laboratory reports	Yes		Yes	
Laboratory Method Blanks	Method blanks are prepared to represent the sample matrix as closely as possible and prepared/extracted/digested and analysed exactly like field samples. These blanks are used by the laboratory to assess contamination introduced during sample preparation activities.	Analyte concentrations below LORs.	Laboratory reports	Yes		Yes	
Potentially Anomalous Data	No discrepancies between field, laboratory and/or expected results are identified	Analytical results are internally consistent, consistent with field measurements, and consistent with expected and/or historical results based on CSM	Multiple sources	Yes		Yes	

Data Validation Checklist

Job Number:	S20102
Report Title:	Surface Water and Groundwater Monitoring
Client:	ReDirect Recycling
Completed By:	Bec Chapple
Date:	9-Aug-24
Verified By:	Emma Walsh
Date:	11-Sep-24

SAMPLE DELIVERY GROUP (SDG):	ES2423038	SAMPLE DELIVERY GROUP (SDG):	1117968
Laboratory:	ALS	**Laboratory:**	Eurofins
Sample Dates:	22-Jul-24	**Sample Dates:**	15-Jul-24
Sample Media:	Water	**Sample Media:**	Water

Objectives & Measure	Acceptance Criteria	Source of Information	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
Standard field sampling procedures and forms used	No deviation from standard procedure and forms used.	Borelogs, field sheets, COCs, data tables	Yes		Yes	
All equipment calibrated in accordance with manufacturers specifications	All equipment calibrated in accordance with manufacturers specifications.	Calibration Certificates / Records	Yes		Yes	
NATA accredited methods used for all analyses determined	Primary and secondary laboratories to use NATA accredited methods for all analytes determined.	Laboratory Report	Yes		Yes	
Field QC sampling frequency in accordance with AS4482.1-2005	Field (Intra-laboratory) Duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	Yes	QC104	N/A	Primary laboratory received sample
	Secondary (inter-laboratory) duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1117968.	Yes	QC204
	Rinsate Blanks - ≥ 1 per day, per matrix per equipment.	QA/QC register (within field book)	Yes	QC304	N/A	Primary laboratory received sample
	Trip Blanks - ≥ 1 per esky containing samples for volatiles.	QA/QC register (within field book)	Yes	QC405	N/A	Primary laboratory received sample
Laboratory QC analysis frequency in accordance with NEPC 2013	Laboratory Duplicates - at least 1 in 10 analyses or 1 per process batch.	Laboratory Reports	No	A laboratory duplicate for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.	Yes	
	Method Blanks - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
	Surrogate Recoveries - all samples spiked where appropriate (e.g. chromatographic analysis of organics).	Laboratory Reports	Yes		Yes	
	Laboratory Control Samples - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
	Matrix Spikes - at least 1 per matrix type per process batch.	Laboratory Reports	No	A matrix spike for PAH/Phenols and TRH-Semivolatile fraction was not analysed, resulting in a non-conformance for frequency for this analysis. Not considered to impact upon assessment of accuracy, precision and comparability since the intra-laboratory and inter-laboratory field duplicates were analysed for PAH/ phenols and TRH semivolatile fraction and were DQI compliant.	Yes	
Samples appropriately preserved upon collection, stored and transported, and analysed within holding times	In accordance with laboratory specific method requirements. Unless specific method indicates otherwise, soil and water samples should be stored, transported and received by the laboratory at < 6°C.	Laboratory Reports	Yes		Yes	
No errors in data transcription	Entry of field data verified by peer.	10% check of electronically imported data (e.g. ESDAT). 100% check of manually entered data (e.g. field parameters, gauging data).	Yes		Yes	
Limits of reporting less than investigation levels	Limits of reporting less than relevant investigation levels.	Results Tables	Yes		Yes	

Objectives & Measure	Acceptance Criteria	How? (i.e. ESDAT output, review lab reports, review data etc)	Acceptance Criteria Met?	Notes/Details of Nonconformance	Acceptance Criteria Met?	Notes/Details of Nonconformance
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 precision level of precision.	Analysed for same chemicals as primary sample. RPD <30% of mean conc. where both conc. >20 x LOR RPD <50% of mean conc. where both conc. 10-20 x LOR RPD No limit where both conc. < 10 x LOR	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	Yes		N/A	Primary laboratory received sample
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 conc. where both conc. >20 x LOR. RPD <50% of mean conc. where both conc. 10-20 x LOR. RPD no limit where both conc. < 10 x LOR.	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	N/A	Relevant inter-laboratory QC samples for this WME reported in batch 1117968.	Yes	
Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	No	Total oxidised nitrogen, total kjeldahl nitrogen and total nitrogen (as N) were reported above LOR. Not seen as a significant impact to interpretation of results asno adopted assessment criteria for these analytes in groundwater.	N/A	Primary laboratory received sample
Cross contamination between samples does not occur in transit or as an artefact of the sampling handling procedure.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	Yes		N/A	Primary laboratory received sample
Laboratory duplicates are used to test the precision of the laboratory measurements.	As specified by laboratory.	Laboratory reports	Yes		No	The RPD reported for nickel (32%) passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of lab report
Laboratory control samples (LCS) are used to assess overall method performance. In general these samples are similar in composition to environmental samples, and contain known amounts of the analytes of interest.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
CRM samples are used to monitor the accuracy of analyses performed by the laboratory.	As specified by laboratory (generally dynamic recovery limits). Usually not performed and assessed based on LCS results.	Laboratory reports	N/A		N/A	
Surrogates are organic compounds that are similar in chemical composition to analytes of interest and are spiked into environmental samples prior to sample preparation and analysis. Surrogate recoveries are used to evaluate matrix interference on a sample-specific basis.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
A matrix spike is an aliquot of a sample spiked with a known concentration of target analyte(s). Spiking occurs prior to sample preparation and analysis, and the results are used to assess the bias of a method in a given sample matrix.	Recovery 70 - 130% or dynamic limits if specified by laboratory.	Laboratory reports	No	Mattix spike recovery not determined for manganese and nitrite and nitrate (as N) as the background level greater than or equal to 4x spike level. An ananymous sample was used from a different project and therefore this is not expected to impact the accuracy of the results	Yes	
Method blanks are prepared to represent the sample matrix as closely as possible and prepared/extracted/digested and analysed exactly like field samples. These blanks are used by the laboratory to assess contamination introduced during sample preparation activities.	Analyte concentrations below LORs.	Laboratory reports	Yes		Yes	
No discrepancies between field, laboratory and/or expected results are identified	Analytical results are internally consistent, consistent with field measurements, and consistent with expected and/or historical results based on CSM	Multiple sources	Yes		Yes	

Project: Surface Water and Groundwater Monitoring 2023 and 2024
Client: ReDirect Recycling
Site Address: 24 Davis Road, Wetherill Park NSW

Table D2: RPD Analytical Results

Location Code			MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3	
Field ID			MW3	QC101		MW3	QC201		MW3	QC102		MW3	QC202		MW3	QC103		MW3	QC203		MW3	QC104		MW3	QC204	
Date			08/02/2023	08/02/2023		08/02/2023	08/02/2023		14/08/2023	14/08/2023		14/08/2023	14/08/2023		09/02/2024	09/02/2024		09/02/2024	09/02/2024		11/07/2024	11/07/2024		11/07/2024	11/07/2024	
Sample Type			Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D	
Lab Report No.			ES2304011	ES2304011	RPD	ES2304011	316159	RPD	ES2327328	ES2327328	RPD	ES2327328	1020195	RPD	ES2404239	ES2404239	RPD	ES2404239	1067666	RPD	ES2423038	ES2423038	RPD	ES2423038	1117968	RPD
	Unit	EQL																								
Physical Parameters																										
Electrical Conductivity	µS/cm	1	34,200	-	-	34,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	1	22,200	-	-	22,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (Lab)	pH Units	0.01	7.09	-	-	7.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals																										
Arsenic (filtered)	mg/L	0.001	<0.010	<0.010	0	<0.010	0.004	0	<0.010	<0.010	0	<0.010	0.002	0	<0.010	<0.010	0	<0.010	0.011	0	0.003	0.003	0	0.003	<0.01	0
Cadmium (filtered)	mg/L	0.0001	<0.0010	<0.0010	0	<0.0010	0.0001	0	<0.0010	<0.0010	0	<0.0010	<0.0002	0	<0.0010	<0.0010	0	<0.0010	<0.0002	0	<0.0001	<0.0001	0	<0.0001	<0.002	0
Chromium (filtered)	mg/L	0.001	<0.010	<0.010	0	<0.010	0.002	0	<0.010	<0.010	0	<0.010	0.002	0	<0.010	<0.010	0	<0.010	0.005	0	<0.001	<0.001	0	<0.001	<0.01	0
Copper (filtered)	mg/L	0.001	<0.010	<0.010	0	<0.010	<0.001	0	<0.010	<0.010	0	<0.010	0.002	0	<0.010	<0.010	0	<0.010	0.006	0	0.002	<0.001	67	0.002	<0.01	0
Iron (filtered)	mg/L	0.01	5.05	5.15	2	5.05	5.7	12	5.64	6.04	7	5.64	2.3	**84**	8.01	8.08	1	8.01	-	-	7.01	6.96	1	7.01	7.4	5
Lead (filtered)	mg/L	0.001	<0.010	<0.010	0	<0.010	0.001	0	<0.010	<0.010	0	<0.010	0.002	0	<0.010	<0.010	0	<0.010	0.005	0	<0.001	<0.001	0	<0.001	<0.01	0
Manganese (filtered)	mg/L	0.001	5.99	6.15	3	5.99	5.8	3	6.39	6.57	3	6.39	5.9	8	7.00	7.08	1	7.00	-	-	6.79	6.80	0	6.79	7.4	9
Mercury (filtered)	mg/L	0.00005	<0.0001	<0.0001	0	<0.0001	<0.00005	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.001	0
Nickel (filtered)	mg/L	0.001	0.191	0.167	13	0.191	0.18	6	0.207	0.205	1	0.207	0.18	14	0.191	0.197	3	0.191	0.16	4	0.200	0.200	0	0.200	0.20	0
Zinc (filtered)	mg/L	0.001	0.225	0.196	14	0.225	0.23	2	0.122	0.074	**49**	0.122	0.086	**35**	0.247	0.253	2	0.247	0.18	8	0.243	0.239	2	0.243	0.25	3
Inorganics																										
Ammonia (as N)	mg/L	0.01	0.22	-	-	0.22	-	-	0.29	-	-	0.29	-	-	0.29	-	-	0.29	-	-	0.28	-	-	0.28	-	-
Nitrate (as N)	mg/L	0.01	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	<0.02	0	0.03	-	-	0.03	0.10	108	0.01	-	-	0.01	<0.02	0
Nitrite (as N)	mg/L	0.01	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	<0.02	0	<0.01	-	-	<0.01	<0.02	0	<0.01	-	-	<0.01	<0.02	0
Total Oxidised Nitrogen (as N)	mg/L	0.01	<0.01	0.02	67	<0.01	-	-	<0.01	-	-	<0.01	<0.05	0	0.03	0.02	40	0.03	0.11	114	0.01	0.02	67	0.01	<0.05	0
Total Kjeldahl Nitrogen	mg/L	0.1	1.0	1.3	26	1.0	-	-	0.4	-	-	0.4	0.5	22	0.9	0.9	0	0.9	1.3	36	0.6	0.6	0	0.6	1.0	50
Total Nitrogen (as N)	mg/L	0.1	1.0	1.3	26	1.0	0.5	67	0.4	-	-	0.4	0.5	22	0.9	0.9	0	0.9	1.4	43	0.6	0.6	0	0.6	1.0	50
Phosphorus (as P)	mg/L	0.01	0.12	0.10	18	0.12	0.8	**148**	0.02	-	-	0.02	-	-	0.08	0.09	12	0.08	-	-	0.04	0.04	0	0.04	-	-
Phosphate (as P)	mg/L	0.01	-	-	-	-	-	-	-	-	-	-	0.03	-	-	-	-	-	0.05	-	-	-	-	-	0.03	-
Ortho-phosphate (as P)	mg/L	0.01	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride	mg/L	0.1	1.2	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Absorption Ratio (filtered)	-	0.01	37.8	-	-	37.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major Ions																										
Calcium (filtered)	mg/L	1	181	-	-	181	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	1	11,900	-	-	11,900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (filtered)	mg/L	1	1,040	-	-	1,040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (filtered)	mg/L	1	14	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate (as SO4) (filtered)	mg/L	1	907	-	-	907	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (filtered)	mg/L	1	5,980	-	-	5,980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions Total	meq/L	0.01	359	-	-	359	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cations Total	meq/L	0.01	355	-	-	355	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ionic Balance	%	0.01	0.55	-	-	0.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity																										
Bicarbonate Alkalinity (as CaCO3)	mg/L	1	222	-	-	222	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbonate Alkalinity (as CaCO3)	mg/L	1	<1	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide Alkalinity (as CaCO3)	mg/L	1	<1	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Alkalinity (as CaCO3)	mg/L	1	222	-	-	222	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO3) (filtered)	mg/L	1	4,730	-	-	4,730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BTEX																										
Benzene	µg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<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	<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	<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	<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	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
Total Xylene	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	<3	0	<2	<2	0	<2	<3	0	<2	<2	0	<2	<3	0
Total BTEX	µg/L	1	<1	<1	0	<1	-	-	<1	<1	0	<1	-	-	<1	<1	0	<1	-	-	<1	<1	0	<1	-	-
Total Petroleum Hydrocarbons																										
C6-C9 Fraction	µg/L	10	<20	<20	0	<20	<10	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
C10-C14 Fraction	µg/L	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	90	57
C15-C28 Fraction	µg/L	100	<100	<100	0	<100	140	33	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	810	800	1	810	400	68
C29-C36 Fraction	µg/L	50	<50	<50	0	<50	<100	0	<50	<50	0	<50	<100	0	<50	<50	0	<50	<100	0	<50	<50	0	<50	300	143
C10-C36 Fraction (Sum)	µg/L	50	<50	<50	0	<50	140	95	<50	<50	0	<50	<100	0	<50	<50	0	<50	<100	0	810	800	1	810	790	2
Total Recoverable Hydrocarbons																										
C6-C10 Fraction	µg/L	10	<20	<20	0	<20	<10	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
C6-C10 Fraction minus BTEX (F1)	µg/L	10	<20	<20	0	<20	<10	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
>C10-C16 Fraction	µg/L	50	<100	<100	0	<100	130	26	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0	<100	<100	0	<100	110	10
>C10-C16 Fraction minus naphthalene (F2)	µg/L	50	<100	<100	0	<100	130	26	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0	<100	<100	0	<100	110	10
>C16-C34 Fraction	µg/L	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	400	480	18	400	600	40
>C34-C40 Fraction	µg/L	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	200	67
>C10-C40 Fraction (Sum)	µg/L	50	<100	<100	0	<100	130	26	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	400	480	18	400	910	78
PAHs																										
Acenaphthene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Acenaphthylene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Benz(a)anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Benzo(a)pyrene	µg/L	0.5	<0.5	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0
Benzo(b+j)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	-	-	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Benzo(g,h,i)perylene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Benzo(b+j+k)fluoranthene	µg/L	2	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	-	-	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Chrysene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Dibenz(a,h)anthracene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Fluorene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Indeno(1,2,3-c,d)pyrene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Naphthalene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Naphthalene (VOC)	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	0	<5	<10	0
Phenanthrene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Pyrene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	<1.0	<1	0
Benzo(a)pyrene TEQ (Zero)	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0
Benzo(a)pyrene TEQ	µg/L	5	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Positive PAHs	µg/L	1	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																										
2-Methylphenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Surface Water and Groundwater Monitoring 2023 and 2024
Client: ReDirect Recycling
Site Address: 24 Davis Road, Wetherill Park NSW

Table D2: RPD Analytical Results

		Location Code	MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3		MW3	MW3	
		Field ID	MW3	QC101		MW3	QC201		MW3	QC102		MW3	QC202		MW3	QC103		MW3	QC203		MW3	QC104		MW3	QC204	
		Date	08/02/2023	08/02/2023		08/02/2023	08/02/2023		14/08/2023	14/08/2023		14/08/2023	14/08/2023		09/02/2024	09/02/2024		09/02/2024	09/02/2024		11/07/2024	11/07/2024		11/07/2024	11/07/2024	
		Sample Type	Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D	
		Lab Report No.	ES2304011	ES2304011	RPD	ES2304011	316159	RPD	ES2327328	ES2327328	RPD	ES2327328	1020195	RPD	ES2404239	ES2404239	RPD	ES2404239	1067666	RPD	ES2423038	ES2423038	RPD	ES2423038	1117968	RPD
	Unit	EQL																								
2-Nitrophenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-&4-Methylphenol (m&p-cresol)	µg/L	2	<2.0	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Halogenated Phenols																										
2,4,5-Trichlorophenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dichlorophenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	µg/L	1	<1.0	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	µg/L	2	<2.0	-	-	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

***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**

Project: Surface Water and Groundwater Monitoring 2023-2024
Client: ReDirect Recycling
Site Address: 24 Davis Road, Wetherill Park NSW

Table D3: Rinsate Analytical Table

Field ID			QC301	QC302	QC303	QC304
Date			08/02/2023	14/08/2023	09/02/2024	11/07/2024
Sample Type			Rinsate	Rinsate	Rinsate	Rinsate
Lab Report No.			ES2304011	ES2327328	ES2404239	ES2423038
	Unit	EQL				
Metals						
Arsenic (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Cadmium (filtered)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (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
Iron (filtered)	mg/L	0.05	<0.05	<0.05	-	<0.05
Lead (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Manganese (filtered)	mg/L	0.001	<0.01	**0.038**	-	<0.01
Mercury (filtered)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel (filtered)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Zinc (filtered)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005
Inorganics						
Total Oxidised Nitrogen (as N)	mg/L	0.01	<0.01	-	<0.01	**3.34**
Total Kjeldahl Nitrogen	mg/L	0.1	<0.1	-	<0.1	**0.1**
Total Nitrogen (as N)	mg/L	0.1	<0.1	-	<0.1	**3.4**
Phosphorus (as P)	mg/L	0.01	<0.01	-	**0.02**	<0.01
BTEX						
Benzene	µg/L	1	<1	<1	<1	<1
Toluene	µg/L	2	<2	<2	<2	<2
Ethylbenzene	µg/L	2	<2	<2	<2	<2
Xylene (m & p)	µg/L	2	<2	<2	<2	<2
Xylene (o)	µg/L	2	<2	<2	<2	<2
Total Xylene	µg/L	2	<2	<2	<2	<2
Total BTEX	µg/L	1	<1	<1	<1	<1
Total Petroleum Hydrocarbons						
C6-C9 Fraction	µg/L	20	<20	<20	<20	<20
C10-C14 Fraction	µg/L	50	<50	<50	<50	<50
C15-C28 Fraction	µg/L	100	<100	<100	<100	<100
C29-C36 Fraction	µg/L	50	<50	<50	<50	<50
C10-C36 Fraction (Sum)	µg/L	50	<50	<50	<50	<50
Total Recoverable Hydrocarbons						
C6-C10 Fraction	µg/L	20	<20	<20	<20	<20
C6-C10 Fraction minus BTEX (F1)	µg/L	20	<20	<20	<20	<20
>C10-C16 Fraction	µg/L	100	<100	<100	<100	<100
>C10-C16 Fraction minus naphthalene (F2)	µg/L	100	<100	<100	<100	<100
>C16-C34 Fraction	µg/L	100	<100	<100	<100	<100
>C34-C40 Fraction	µg/L	100	<100	<100	<100	<100
>C10-C40 Fraction (Sum)	µg/L	100	<100	<100	<100	<100
PAHs						
Acenaphthene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Anthracene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Chrysene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Fluoranthene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Fluorene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-c,d)pyrene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Naphthalene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Naphthalene (VOC)	µg/L	5	-	-	-	<5
Phenanthrene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Pyrene	µg/L	1	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene TEQ (Zero)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5

Project: Surface Water and Groundwater Monitoring 2023 and 2024
Client: ReDirect Recycling
Site Address: 24 Davis Road, Wetherill Park NSW

Table D5: Trip Spike Analytical Results

Field ID			QC501	TSC	% Recovery	QC402	TSC	% Recovery	QC503	TSC	% Recovery	QC504	TSC	% Recovery	QC505	TSC	% Recovery	QC505	TSC	% Recovery
Date			6/02/2023			1/08/2023			5/02/2024			5/02/2024			8/07/2024			9/07/2024		
Sample Type			Trip Spike			Trip Spike			Trip Spike			Trip Spike			Trip Spike			Trip Spike		
Lab Report No.			ES2304011			ES2327328			ES2403942			ES2404239			ES2423038			ES2422553		
	Unit	EQL																		
BTEXN																				
Benzene	µg/L	1	16	20	80	16	20	80	20	20	100	15	20	75	14	20	70	14	20	70
Toluene	µg/L	2	15	20	75	16	20	80	18	20	90	16	20	80	15	20	75	15	20	75
Ethylbenzene	µg/L	2	14	20	70	17	20	85	17	20	85	16	20	80	14	20	70	16	20	80
Xylene (m & p)	µg/L	2	15	20	75	18	20	90	16	20	80	17	20	85	14	20	70	16	20	80
Xylene (o)	µg/L	2	15	20	75	19	20	95	16	20	80	17	20	85	16	20	80	14	20	70
Total Xylene	µg/L	2	30	40	75	37	40	93	32	40	80	34	40	85	30	40	75	30	40	75
Total BTEX	µg/L	1	75	100	75	86	100	86	87	100	87	81	100	81	73	100	73	75	100	75
Naphthalene	µg/L	1	15	20	75	17	20	85	16	20	80	18	20	90	19	20	95	21	20	105

Prepared by:
Checked by:

Appendix E: Laboratory Reports

senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address:
Contact: Sample Receipt
Phone:

Job Number:	S20102	**Purchase Order:**	
Project Name:	Wetherill Park WME	**Quote No:**	EN/103/21
Sampled By:	Bec Chapple	**Turn Around Time:**	Standard 7 Days
Project Manager:	Emma Walsh	**Page:**	1 of 1
Email Report To:	Bec.Chapple@senversa.com.au; Emma.Walsh@senversa.com.au	**Phone/Mobile:**	0408038593, 0404011544

Environmental Division
Sydney
Work Order Reference
ES2304011

Telephone : + 61-2-8784 8555

Sample Information					Container Information		Analysis Required											
Lab ID	**Sample ID**	**Matrix ***	**Date**	**Time**	**Type / Code**	**Total Bottles**	W-18 (TRH/BTEXN)	W-26 (TRH/BTEX/PAH/8 METALS)	W-27 (TRH/BTEX/PAH/8 METALS/ PHENOLS)	NT-14 (CATIONS, ANIONS AND NUTRIENTS)	NT-11 (TN, TP)	EA015H (TDS)	EA025H (TSS)	EG005F (FE AND MN)			HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
1	QC401	W	8/02/2023	AM	VOA	1	X											
2	QC501	W	8/02/2023	AM	VOA	1	X											
3	QC301	W	8/02/2023	AM	VS x2, N, UA, VSA	5		X			X			X				
4	MW1	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
5	MW2	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
6	MW3	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
7	MW4	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
8	MW6	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
9	QC101	W	8/02/2023	AM	VS x2, N, UA, VSA	5		X			X			X				
X	QC201	W	8/02/2023	AM	VS x2, N, UA, VSA	5												Please forward to Envirolab
Total						47												

HT

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:**	Bec Chapple	**Signature:**	**Date:**	8/02/2023

Relinquished By:			**Method of Shipment (if applicable):**	**Received by:**		
Name/Signature:	Bec Chapple	Date: 8/2/23	Carrier / Reference #:	Name/Signature:		Date: 8/2/23
Of:		Time: 12:00 PM	Date/Time:	Of:		Time: 12:20
Name/Signature:		Date:	Carrier / Reference #:	Name/Signature:		Date:
Of:		Time:	Date/Time:	Of:		Time:
Name/Signature:		Date:	Carrier / Reference #:	Name/Signature:		Date:
Of:		Time:	Date/Time:	Of:		Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: ________
Checked by: ________

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2304011**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Helen Simpson
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Emma.Walsh@senversa.com.au	E-mail	: helen.simpson@alsglobal.com
Telephone	: 02 8252 0000	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: S20102 Wetherill Park WME	Page	: 1 of 3
Order number	: ----	Quote number	: ES2022SENVER0004 (SY/103/22)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Bec Chapple		

Dates

Date Samples Received	: 08-Feb-2023 12:20	Issue Date	: 08-Feb-2023
Client Requested Due Date	: 15-Feb-2023	Scheduled Reporting Date	: **15-Feb-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 15.56'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 9 / 9

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
- **Sample ID QC201 will be forwarded to Envirolab as per COC.**
- **samples 1 and 2 had a sample date of 08/02 on the COC but the bottle had 06/02.**
- **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.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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 - EG005F Dissolved Metals by ICPAES	WATER - EP080 BTEXN	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - NT-14 Extended Water Suite B	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-26 TRH/BTEXN/PAH/8 Metals	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES2304011-001	06-Feb-2023 00:00	QC401					✓		
ES2304011-002	06-Feb-2023 00:00	QC501		✓					
ES2304011-003	08-Feb-2023 00:00	QC301	✓		✓			✓	
ES2304011-004	08-Feb-2023 00:00	MW1	✓			✓			✓
ES2304011-005	08-Feb-2023 00:00	MW2	✓			✓			✓
ES2304011-006	08-Feb-2023 00:00	MW3	✓			✓			✓
ES2304011-007	08-Feb-2023 00:00	MW4	✓			✓			✓
ES2304011-008	08-Feb-2023 00:00	MW6	✓			✓			✓
ES2304011-009	08-Feb-2023 00:00	QC101	✓		✓			✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

Angus Dibley

- *AU Certificate of Analysis - NATA (COA)	Email	angus.dibley@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	angus.dibley@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	angus.dibley@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	angus.dibley@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	angus.dibley@senversa.com.au
- EDI Format - ENMRG (ENMRG)	Email	angus.dibley@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	angus.dibley@senversa.com.au

BEC CHAPPLE

- *AU Certificate of Analysis - NATA (COA)	Email	bec.chapple@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bec.chapple@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bec.chapple@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bec.chapple@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	bec.chapple@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	bec.chapple@senversa.com.au
- EDI Format - XTab (XTAB)	Email	bec.chapple@senversa.com.au

EMMA WALSH

- *AU Certificate of Analysis - NATA (COA)	Email	Emma.Walsh@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Emma.Walsh@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Emma.Walsh@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Emma.Walsh@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Emma.Walsh@senversa.com.au
- EDI Format - XTab (XTAB)	Email	Emma.Walsh@senversa.com.au

GRAEME MILLER

- *AU Certificate of Analysis - NATA (COA)	Email	graeme.miller@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	graeme.miller@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	graeme.miller@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	graeme.miller@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	graeme.miller@senversa.com.au
- EDI Format - ENMRG (ENMRG)	Email	graeme.miller@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	graeme.miller@senversa.com.au

Ian Wilson

- *AU Certificate of Analysis - NATA (COA)	Email	ian.wilson@pkc.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ian.wilson@pkc.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ian.wilson@pkc.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ian.wilson@pkc.com.au
- Chain of Custody (CoC) (COC)	Email	ian.wilson@pkc.com.au
- EDI Format - ENMRG (ENMRG)	Email	ian.wilson@pkc.com.au
- EDI Format - ESDAT (ESDAT)	Email	ian.wilson@pkc.com.au

JIM BAILEY

- *AU Certificate of Analysis - NATA (COA)	Email	jim.bailey@pkc.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jim.bailey@pkc.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jim.bailey@pkc.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jim.bailey@pkc.com.au
- Chain of Custody (CoC) (COC)	Email	jim.bailey@pkc.com.au
- EDI Format - ESDAT (ESDAT)	Email	jim.bailey@pkc.com.au
- EDI Format - XTab (XTAB)	Email	jim.bailey@pkc.com.au

JONATHAN MANN

- *AU Certificate of Analysis - NATA (COA)	Email	jonathan.mann@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jonathan.mann@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jonathan.mann@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jonathan.mann@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	jonathan.mann@senversa.com.au
- EDI Format - ENMRG (ENMRG)	Email	jonathan.mann@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	jonathan.mann@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **ES2304011**	Page	: 1 of 11
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Helen Simpson
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 8252 0000	Telephone	: +61 2 8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 08-Feb-2023 12:20
Order number	: ----	Date Analysis Commenced	: 08-Feb-2023
C-O-C number	: ----	Issue Date	: 14-Feb-2023 17:19
Sampler	: Bec Chapple		
Site	: ----		
Quote number	: SY/103/22		
No. of samples received	: 9		
No. of samples analysed	: 9		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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.

- EK067G: LOR raised for Total P on sample 4 due to sample matrix.
- EK059G: LOR raised for NOx on sample 4 due to sample matrix.
- EK058G: LOR raised for Nitrate on sample 4 due to sample matrix.
- 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.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene 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.
- EG020: LORs have been raised for some samples due to matrix interference (High sample salinity)
- EK057G: LOR raised for Nitrite due to sample matrix
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- 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.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**QC401**	**QC501**	**QC301**	**MW1**	**MW2**
			Sampling date / time	06-Feb-2023 00:00	06-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2304011-001**	**ES2304011-002**	**ES2304011-003**	**ES2304011-004**	**ES2304011-005**
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	----	**7.74**	**7.70**
EA006: Sodium Adsorption Ratio (SAR)								
^ **Sodium Adsorption Ratio**	----	0.01	-	----	----	----	**30.4**	**31.6**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	**25800**	**25700**
EA016: Calculated TDS (from Electrical Conductivity)								
Total Dissolved Solids (Calc.)	----	1	mg/L	----	----	----	**16800**	**16700**
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	----	----	----	**4020**	**3980**
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	----	----	----	**916**	**815**
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	**916**	**815**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	**691**	**756**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	----	**8840**	**8800**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	----	**273**	**232**
Magnesium	7439-95-4	1	mg/L	----	----	----	**810**	**826**
Sodium	7440-23-5	1	mg/L	----	----	----	**4430**	**4590**
Potassium	7440-09-7	1	mg/L	----	----	----	**25**	**21**
EG005(ED093)F: Dissolved Metals by ICP-AES								
Iron	7439-89-6	0.05	mg/L	----	----	<0.05	**4.97**	**0.40**
Manganese	7439-96-5	0.01	mg/L	----	----	<0.01	**0.92**	**0.96**
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	**0.011**	**0.004**
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	**0.015**	**0.011**
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	**0.023**	**0.006**

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**QC401**	**QC501**	**QC301**	**MW1**	**MW2**
			Sampling date / time	06-Feb-2023 00:00	06-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	**ES2304011-001**	**ES2304011-002**	**ES2304011-003**	**ES2304011-004**	**ES2304011-005**
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Zinc	7440-66-6	0.005	mg/L	----	----	<0.005	**0.012**	**0.008**
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	<0.0001	<0.0001
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	----	----	----	**0.8**	**0.7**
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	----	**0.71**	**0.52**
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	----	----	<0.10	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	----	----	<0.10	**0.03**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	<0.01	<0.10	**0.03**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	<0.1	**0.9**	**1.0**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	----	----	<0.1	**0.9**	**1.0**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	----	<0.01	<0.05	**0.06**
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	----	<0.01	**0.02**
EN055: Ionic Balance								
ø **Total Anions**	----	0.01	meq/L	----	----	----	**282**	**280**
ø **Total Cations**	----	0.01	meq/L	----	----	----	**274**	**280**
ø **Ionic Balance**	----	0.01	%	----	----	----	**1.52**	**0.09**
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	----	----	----	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	----	----	----	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	----	----	----	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	----	----	----	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	----	----	----	<1.0	<1.0
2.4-Dimethylphenol	105-67-9	1.0	µg/L	----	----	----	<1.0	<1.0
2.4-Dichlorophenol	120-83-2	1.0	µg/L	----	----	----	<1.0	<1.0

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**QC401**	**QC501**	**QC301**	**MW1**	**MW2**
			Sampling date / time	06-Feb-2023 00:00	06-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2304011-001**	**ES2304011-002**	**ES2304011-003**	**ES2304011-004**	**ES2304011-005**
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2.6-Dichlorophenol	87-65-0	1.0	µg/L	----	----	----	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	----	----	----	<1.0	<1.0
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	----	----	----	<1.0	<1.0
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	----	----	----	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	----	----	----	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	----	----	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	----	----	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	----	----	<50	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	----	----	<50	<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

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**QC401**	**QC501**	**QC301**	**MW1**	**MW2**
			Sampling date / time	06-Feb-2023 00:00	06-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00
Compound	CAS Number	LOR	Unit	**ES2304011-001**	**ES2304011-002**	**ES2304011-003**	**ES2304011-004**	**ES2304011-005**
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>C10 - C16 Fraction	----	100	µg/L	----	----	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	----	----	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	----	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	----	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	----	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	**16**	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	**15**	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	**14**	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	**15**	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	**15**	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	**30**	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	**75**	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	**17**	<5	<5	<5
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	----	**28.1**	**31.6**	**30.2**
2-Chlorophenol-D4	93951-73-6	1.0	%	----	----	**58.8**	**62.4**	**60.6**
2.4.6-Tribromophenol	118-79-6	1.0	%	----	----	**60.4**	**70.1**	**71.9**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	----	**69.7**	**68.8**	**73.0**
Anthracene-d10	1719-06-8	1.0	%	----	----	**94.2**	**98.3**	**93.6**
4-Terphenyl-d14	1718-51-0	1.0	%	----	----	**80.2**	**85.6**	**80.2**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**99.7**	**97.1**	**89.9**	**96.8**	**100**
Toluene-D8	2037-26-5	2	%	**99.4**	**98.2**	**94.5**	**99.5**	**98.4**
4-Bromofluorobenzene	460-00-4	2	%	**97.7**	**94.7**	**88.7**	**96.6**	**96.5**

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW3**	**MW4**	**MW6**	**QC101**	**----**
			Sampling date / time	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2304011-006**	**ES2304011-007**	**ES2304011-008**	**ES2304011-009**	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.09**	**7.72**	**8.06**	----	----
EA006: Sodium Adsorption Ratio (SAR)								
^ **Sodium Adsorption Ratio**	----	0.01	-	**37.8**	**21.4**	**6.70**	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**34200**	**19900**	**2310**	----	----
EA016: Calculated TDS (from Electrical Conductivity)								
Total Dissolved Solids (Calc.)	----	1	mg/L	**22200**	**12900**	**1500**	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**4730**	**3980**	**586**	----	----
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	**222**	**1110**	**834**	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**222**	**1110**	**834**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**907**	**280**	**44**	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**11900**	**6680**	**341**	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**181**	**299**	**50**	----	----
Magnesium	7439-95-4	1	mg/L	**1040**	**786**	**112**	----	----
Sodium	7440-23-5	1	mg/L	**5980**	**3100**	**373**	----	----
Potassium	7440-09-7	1	mg/L	**14**	**35**	**6**	----	----
EG005(ED093)F: Dissolved Metals by ICP-AES								
Iron	7439-89-6	0.05	mg/L	**5.05**	**1.22**	<0.05	**5.15**	----
Manganese	7439-96-5	0.01	mg/L	**5.99**	**5.45**	**0.04**	**6.15**	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.010	**0.005**	<0.001	<0.010	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0001	<0.0001	<0.0010	----
Chromium	7440-47-3	0.001	mg/L	<0.010	<0.001	<0.001	<0.010	----
Copper	7440-50-8	0.001	mg/L	<0.010	**0.005**	**0.003**	<0.010	----
Lead	7439-92-1	0.001	mg/L	<0.010	<0.001	<0.001	<0.010	----
Nickel	7440-02-0	0.001	mg/L	**0.191**	**0.021**	<0.001	**0.167**	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW3**	**MW4**	**MW6**	**QC101**	**----**
			Sampling date / time	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2304011-006**	**ES2304011-007**	**ES2304011-008**	**ES2304011-009**	--------
				Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Zinc	7440-66-6	0.005	mg/L	**0.225**	<0.005	<0.005	**0.196**	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	**1.2**	**1.6**	**1.8**	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.22**	**0.34**	**0.02**	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	**0.25**	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	**0.01**	**1.00**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	**0.01**	**1.25**	**0.02**	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.0**	**1.1**	**0.4**	**1.3**	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**1.0**	**1.1**	**1.6**	**1.3**	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.12**	**0.09**	**0.09**	**0.10**	----
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	----	----
EN055: Ionic Balance								
ø **Total Anions**	----	0.01	meq/L	**359**	**216**	**27.2**	----	----
ø **Total Cations**	----	0.01	meq/L	**355**	**215**	**28.1**	----	----
ø **Ionic Balance**	----	0.01	%	**0.55**	**0.25**	**1.61**	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	MW3	MW4	MW6	QC101	----
			Sampling date / time	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2304011-006	ES2304011-007	ES2304011-008	ES2304011-009	--------
				Result	Result	Result	Result	----
EP075(SIM)A: Phenolic Compounds - Continued								
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<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	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**MW3**	**MW4**	**MW6**	**QC101**	**----**
			Sampling date / time	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	08-Feb-2023 00:00	----
Compound	CAS Number	LOR	Unit	**ES2304011-006**	**ES2304011-007**	**ES2304011-008**	**ES2304011-009**	--------
				Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	<100	<100	<100	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	<100	<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	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**32.6**	**29.6**	**31.5**	**27.0**	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**62.2**	**60.2**	**63.8**	**52.4**	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**84.6**	**78.9**	**70.0**	**62.2**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**77.8**	**77.0**	**81.0**	**66.8**	----
Anthracene-d10	1719-06-8	1.0	%	**109**	**102**	**104**	**84.4**	----
4-Terphenyl-d14	1718-51-0	1.0	%	**94.4**	**88.4**	**87.4**	**70.8**	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**99.0**	**102**	**95.4**	**98.2**	----
Toluene-D8	2037-26-5	2	%	**104**	**100.0**	**95.8**	**101**	----
4-Bromofluorobenzene	460-00-4	2	%	**98.9**	**95.0**	**92.1**	**95.6**	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	*CAS Number*	*Recovery Limits (%)* Low	*Recovery Limits (%)* High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2304011**	Page	: 1 of 11
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Telephone	: +61 2 8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 08-Feb-2023
Site	: ----	Issue Date	: 14-Feb-2023
Sampler	: Bec Chapple	No. of samples received	: 9
Order number	: ----	No. of samples analysed	: 9

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **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							
EG005(ED093)F: Dissolved Metals by ICP-AES	ES2304011--007	MW4	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK057G: Nitrite as N by Discrete Analyser	ES2303855--001	Anonymous	**Nitrite as N**	14797-65-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Dissolved Metals by ICP-AES	1	24	4.17	5.00	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	7	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: **WATER**

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

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)		***Date extracted***	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	08-Feb-2023	✓

Matrix: **WATER**

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

Method	*Sample Date*	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)		*Date extracted*	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA006: Sodium Adsorption Ratio (SAR)							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	08-Mar-2023	✓
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	08-Mar-2023	✓
EA065: Total Hardness as CaCO3							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	08-Mar-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	22-Feb-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	08-Mar-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	08-Mar-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	08-Mar-2023	✓
EG005(ED093)F: Dissolved Metals by ICP-AES							
Clear Plastic Bottle - Nitric Acid; Filtered (EG005F) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**----**	----	----	**09-Feb-2023**	07-Aug-2023	✓

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*
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	07-Aug-2023	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**----**	----	----	**09-Feb-2023**	08-Mar-2023	✓
EK040P: Fluoride by PC Titrator							
Clear Plastic Bottle - Natural (EK040P) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	08-Mar-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**13-Feb-2023**	08-Mar-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	10-Feb-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**----**	----	----	**13-Feb-2023**	08-Mar-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) MW6	**08-Feb-2023**	**09-Feb-2023**	08-Mar-2023	✓	**09-Feb-2023**	08-Mar-2023	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) QC301, MW1, MW2, MW3, MW4	**08-Feb-2023**	**09-Feb-2023**	08-Mar-2023	✓	**10-Feb-2023**	08-Mar-2023	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) QC101	**08-Feb-2023**	**10-Feb-2023**	08-Mar-2023	✓	**11-Feb-2023**	08-Mar-2023	✓

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) QC301, MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**09-Feb-2023**	08-Mar-2023	✓	**10-Feb-2023**	08-Mar-2023	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) QC101	**08-Feb-2023**	**10-Feb-2023**	08-Mar-2023	✓	**11-Feb-2023**	08-Mar-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**----**	----	----	**08-Feb-2023**	10-Feb-2023	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW1, MW2, MW3, MW4, MW6	**08-Feb-2023**	**10-Feb-2023**	15-Feb-2023	✓	**13-Feb-2023**	22-Mar-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**10-Feb-2023**	15-Feb-2023	✓	**13-Feb-2023**	22-Mar-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**10-Feb-2023**	15-Feb-2023	✓	**13-Feb-2023**	22-Mar-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC401	**06-Feb-2023**	**09-Feb-2023**	20-Feb-2023	✓	**09-Feb-2023**	20-Feb-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**09-Feb-2023**	22-Feb-2023	✓	**09-Feb-2023**	22-Feb-2023	✓

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) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**10-Feb-2023**	15-Feb-2023	✓	**13-Feb-2023**	22-Mar-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC401	**06-Feb-2023**	**09-Feb-2023**	20-Feb-2023	✓	**09-Feb-2023**	20-Feb-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**09-Feb-2023**	22-Feb-2023	✓	**09-Feb-2023**	22-Feb-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC401, QC501	**06-Feb-2023**	**09-Feb-2023**	20-Feb-2023	✓	**09-Feb-2023**	20-Feb-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC301, MW1, MW2, MW3, MW4, MW6, QC101	**08-Feb-2023**	**09-Feb-2023**	22-Feb-2023	✓	**09-Feb-2023**	22-Feb-2023	✓

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)							
Alkalinity by Auto Titrator	ED037-P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	5	43	**11.63**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	3	24	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	3	23	**13.04**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	3	22	**13.64**	**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
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	4	23	**17.39**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	**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	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	43	**9.30**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	3	34	**8.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	22	**9.09**	**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
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	6	22	**27.27**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type *Analytical Methods*	*Method*	*Count* *QC*	 *Regular*	*Rate (%)* ***Actual***	 ***Expected***	 *Evaluation*	*Quality Control Specification*
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus as P By Discrete Analyser	EK067G	6	23	**26.09**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	**14.29**	**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)							
Ammonia as N by Discrete analyser	EK055G	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	43	**2.33**	**1.67**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	3	34	**8.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	22	**9.09**	**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
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	**14.29**	**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)							
Ammonia as N by Discrete analyser	EK055G	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	24	**4.17**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	3	34	**8.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	22	**9.09**	**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
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	**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 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)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. 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)
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-AES	EG005F	WATER	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. The ICPAES technique ionises the 0.45µm filtered samples, emitting a characteristic spectrum which is compared against matrix matched standards. 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).
Fluoride by Auto Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM Schedule B(3)

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
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)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. 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)
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)

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)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
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.

QUALITY CONTROL REPORT

Work Order	: **ES2304011**	Page	: 1 of 11
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Helen Simpson
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 8252 0000	Telephone	: +61 2 8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 08-Feb-2023
Order number	: ----	Date Analysis Commenced	: 08-Feb-2023
C-O-C number	: ----	Issue Date	: 14-Feb-2023
Sampler	: Bec Chapple		
Site	: ----		
Quote number	: SY/103/22		
No. of samples received	: 9		
No. of samples analysed	: 9		

NATA
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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)F: Dissolved Metals by ICP-AES (QC Lot: 4859853)									
ES2303873-004	Anonymous	EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	0.04	115	No Limit
		EG005F: Iron	7439-89-6	0.05	mg/L	0.10	0.10	0.0	No Limit
ES2303873-014	Anonymous	EG005F: Manganese	7439-96-5	0.01	mg/L	0.28	0.30	4.1	0% - 20%
EG005(ED093)F: Dissolved Metals by ICP-AES (QC Lot: 4859854)									
ES2304011-006	MW3	EG005F: Manganese	7439-96-5	0.01	mg/L	5.99	6.28	4.6	0% - 20%
		EG005F: Iron	7439-89-6	0.05	mg/L	5.05	5.29	4.7	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 4859914)									
ES2303998-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.25	8.21	0.5	0% - 20%
ES2304011-007	MW4	EA005-P: pH Value	----	0.01	pH Unit	7.72	7.73	0.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 4859910)									
ES2303998-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	488	486	0.4	0% - 20%
ES2303799-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1240	1230	0.6	0% - 20%
ES2303915-029	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	112	111	1.0	0% - 20%
ES2303915-015	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3	3	0.0	No Limit
ES2304011-007	MW4	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	19900	19800	0.4	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 4859913)									
ES2303934-009	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	14	13	10.4	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	14	13	10.4	0% - 50%
ES2304011-007	MW4	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	1110	927	17.7	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 (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 4859913) - continued									
ES2304011-007	MW4	ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1110	927	17.7	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 4860151)									
ES2304009-005	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	10	10	0.0	0% - 50%
ED045G: Chloride by Discrete Analyser (QC Lot: 4860150)									
ES2304029-010	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	13	13	0.0	0% - 50%
ES2304009-005	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	5	5	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 4859850)									
ES2303873-013	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	30	30	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	41	40	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	493	482	2.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	38	38	0.0	0% - 20%
ES2303640-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	248	252	1.3	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	66	66	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1	1	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 4859855)									
ES2304011-008	MW6	ED093F: Calcium	7440-70-2	1	mg/L	50	48	3.3	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	112	111	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	373	389	4.2	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	5	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4859851)									
ES2303640-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.538	0.546	1.6	0% - 20%
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.034	0.034	0.0	0% - 20%
		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	782	786	0.5	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	2.72	2.74	0.7	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	2.03	2.04	0.7	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	134	129	3.5	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 4859849)									
ES2304011-004	MW1	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK040P: Fluoride by PC Titrator (QC Lot: 4859908)									
ES2303799-001	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.1	<0.1	0.0	No Limit
ES2304011-007	MW4	EK040P: Fluoride	16984-48-8	0.1	mg/L	1.6	1.6	0.0	0% - 50%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 4861210)									
ES2303838-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.01	0.01	0.0	No Limit
ES2303866-007	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.07	0.02	93.9	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 4861212)									
ES2304011-008	MW6	EK055G: Ammonia as N	7664-41-7	0.01	mg/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 (%)*
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 4860146)									
ES2303855-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	4.04	4.01	0.9	0% - 20%
EW2300593-011	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: 4861209)									
ES2303838-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.61	0.61	0.0	0% - 20%
ES2303866-007	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: 4861211)									
ES2304011-008	MW6	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.25	1.18	6.0	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 4864095)									
ME2300270-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.01	0.02	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 4861208)									
ES2304011-003	QC301	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 4864092)									
ES2303697-005	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	4.7	4.6	2.7	0% - 20%
EW2300556-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	232	246	5.7	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 4861207)									
ES2303955-004	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	296	316	6.4	0% - 20%
ES2304011-003	QC301	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	0.03	101	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 4864091)									
ES2303697-005	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.46	0.44	4.7	0% - 20%
EW2300556-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	37.0	37.9	2.6	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 4860147)									
ES2303957-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2304009-005	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: 4860152)									
ES2304011-008	MW6	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.02	67.3	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4860105)									
ES2303866-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2304011-003	QC301	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4860105)									
ES2303866-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2304011-003	QC301	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 4860105)									
ES2303866-001	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

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: 4860105) - continued									
ES2303866-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2304011-003	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

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*
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 4859853)								
EG005F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	93.5	82.0	114
EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	0.1 mg/L	100	81.0	113
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 4859854)								
EG005F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	97.0	82.0	114
EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	0.1 mg/L	98.2	81.0	113
EA005P: pH by PC Titrator (QCLot: 4859914)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 4859910)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	93.5	89.9	110
				<1	2100 µS/cm	101	90.2	111
ED037P: Alkalinity by PC Titrator (QCLot: 4859913)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	92.9	81.0	111
				----	50 mg/L	111	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 4860151)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	108	82.0	122
				<1	500 mg/L	107	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 4860150)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	105	80.9	127
				<1	1000 mg/L	100	80.9	127
ED093F: Dissolved Major Cations (QCLot: 4859850)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	97.3	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	105	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	104	85.0	113
ED093F: Dissolved Major Cations (QCLot: 4859855)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	97.2	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	112	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	104	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 4859851)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.9	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.6	84.0	110

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*
EG020F: Dissolved Metals by ICP-MS (QCLot: 4859851) - continued								
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.0	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.7	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.2	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.0	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.4	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 4859849)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	99.6	83.0	105
EK040P: Fluoride by PC Titrator (QCLot: 4859908)								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	96.4	82.0	116
EK055G: Ammonia as N by Discrete Analyser (QCLot: 4861210)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	110	90.0	114
EK055G: Ammonia as N by Discrete Analyser (QCLot: 4861212)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	110	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 4860146)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	98.4	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 4861209)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	103	91.0	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 4861211)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	91.0	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 4864095)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	95.9	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 4861208)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	97.9	69.0	101
				<0.1	1 mg/L	105	70.0	118
				<0.1	5 mg/L	105	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 4864092)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	100	69.0	101
				<0.1	1 mg/L	101	70.0	118
				<0.1	5 mg/L	104	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 4861207)								
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	96.4	71.3	126
				<0.01	1 mg/L	98.7	71.3	126
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 4864091)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	92.7	71.3	126
				<0.01	0.442 mg/L	95.2	71.3	126
				<0.01	1 mg/L	99.5	71.3	126

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*
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 4860147)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	98.8	85.0	117
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 4860152)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	100.0	85.0	117
EP075(SIM)A: Phenolic Compounds (QCLot: 4859814)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	30.5	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	61.4	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	55.1	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	51.2	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	67.1	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	49.3	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	68.7	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	68.7	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	64.3	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	71.6	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	70.2	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	84.8	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4859814)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.4	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	71.4	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	71.4	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	74.4	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	100	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	94.9	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	100	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	101	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	80.2	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	84.4	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	91.4	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	72.8	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	79.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	81.2	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	81.6	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	81.4	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4859815)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	84.4	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	78.0	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	91.6	58.3	120

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: 4860105)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4859815)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	83.4	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	80.3	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	93.6	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4860105)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	101	75.0	127
EP080: BTEXN (QCLot: 4860105)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	107	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	108	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	109	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	104	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	106	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	109	70.0	120

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	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 4859854)							
ES2304011-007	MW4	EG005F: Manganese	7439-96-5	1 mg/L	# Not Determined	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 4860151)							
ES2304009-005	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	117	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 4860150)							
ES2304009-005	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	107	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 4859851)							
ES2304011-005	MW2	EG020A-F: Arsenic	7440-38-2	1 mg/L	108	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	92.8	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	93.8	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	101	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	107	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	101	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: 4859851) - continued							
ES2304011-005	MW2	EG020A-F: Zinc	7440-66-6	1 mg/L	95.7	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 4859849)							
ES2304011-003	QC301	EG035F: Mercury	7439-97-6	0.01 mg/L	96.4	70.0	130
EK040P: Fluoride by PC Titrator (QCLot: 4859908)							
ES2303799-001	Anonymous	EK040P: Fluoride	16984-48-8	5 mg/L	93.2	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 4861210)							
ES2303838-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	118	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 4861212)							
ES2304011-008	MW6	EK055G: Ammonia as N	7664-41-7	1 mg/L	109	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 4860146)							
ES2303855-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 4861209)							
ES2303838-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	117	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 4861211)							
ES2304011-008	MW6	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	93.2	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 4864095)							
ME2300270-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	99.6	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 4861208)							
ES2304011-004	MW1	EK061G: Total Kjeldahl Nitrogen as N	----	25 mg/L	101	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 4864092)							
ES2304009-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	100	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 4861207)							
ES2304011-004	MW1	EK067G: Total Phosphorus as P	----	5 mg/L	99.5	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 4864091)							
ES2304009-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	95.6	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 4860147)							
ES2303957-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	93.3	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 4860152)							
ES2304011-008	MW6	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	98.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4860105)							
ES2303866-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	80.0	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4860105)							

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 Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4860105) - continued							
ES2303866-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	81.9	70.0	130
EP080: BTEXN (QCLot: 4860105)							
ES2303866-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	83.9	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	87.4	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	82.4	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	86.5	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	87.2	70.0	130

senversa

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Chain of Custody Documentation

Laboratory: ALS NSW
Address:
Contact: Sample Receipt
Phone:

Job Number:	S20102	**Purchase Order:**	
Project Name:	Wetherill Park WME	**Quote No:**	EN/103/21
Sampled By:	Bec Chapple	**Turn Around Time:**	Standard 7 Days
Project Manager:	Emma Walsh	**Page:**	1 of 1
Email Report To:	Bec.Chapple@senversa.com.au; Emma.Walsh@senversa.com.au	**Phone/Mobile:**	0408038593, 0404011544

Sample Information					**Container Information**		**Analysis Required**											
Lab ID	**Sample ID**	**Matrix ***	**Date**	**Time**	**Type / Code**	**Total Bottles**	W-27 (TRH/BTEX/PAH/8 METALS/ PHENOLS)	NT-11 (TN, TP)	EA015H (TDS)	EA025H (TSS)	EG005F (FE AND MN)						HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
1	SW1	W	10/02/2023	AM		6	X	X	X	X	X							
2	SW2	W	10/02/2023	AM		6	X	X	X	X	X							
Total						12												

HT

Environmental Division
Sydney
Work Order Reference
ES2304342

Telephone : + 61-2-8784 8555

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:**	Bec Chapple	**Signature:**	**Date:**	10/02/2023

Relinquished By:		**Method of Shipment (if applicable):**	**Received by:**	
Name/Signature: Bec Chapple	Date: 10/2/23	Carrier / Reference #:	Name/Signature: FAB.	Date: 10/2/23
Of:	Time: 9:15 AM	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date: 10:30
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: ________
Checked by: ________

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2304342**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Khaleda Ataei
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Emma.Walsh@senversa.com.au	E-mail	: khaleda.ataei@alsglobal.com
Telephone	: 02 8252 0000	Telephone	: + 61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: S20102 Wetherill Park WME	Page	: 1 of 2
Order number	: ----	Quote number	: EM2020SENVER0016 (EN/103/21)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: BEC CHAPPLE		

Dates

Date Samples Received	: 10-Feb-2023 10:30	Issue Date	: 10-Feb-2023
Client Requested Due Date	: 16-Feb-2023	Scheduled Reporting Date	: **16-Feb-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Intact.
No. of coolers/boxes	: ----	Temperature	: 8.6' C - Ice present
Receipt Detail	: FOAM ESKY	No. of samples received / analysed	: 2 / 2

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 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.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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 - EA015H Total Dissolved Solids - Standard Level	WATER - EA025H Suspended Solids - Standard Level	WATER - EG005F Dissolved Metals by ICPAES	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES2304342-001	10-Feb-2023 00:00	SW1	✓	✓	✓	✓	✓
ES2304342-002	10-Feb-2023 00:00	sw2	✓	✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

BEC CHAPPLE		
- *AU Certificate of Analysis - NATA (COA)	Email	bec.chapple@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bec.chapple@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bec.chapple@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bec.chapple@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	bec.chapple@senversa.com.au
- EDI Format - ENMRG (ENMRG)	Email	bec.chapple@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	bec.chapple@senversa.com.au
EMMA WALSH		
- *AU Certificate of Analysis - NATA (COA)	Email	Emma.Walsh@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Emma.Walsh@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	Emma.Walsh@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Emma.Walsh@senversa.com.au
- EDI Format - ENMRG (ENMRG)	Email	Emma.Walsh@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Emma.Walsh@senversa.com.au
SUPPLIER ACCOUNTS		
- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order : **ES2304342**
Client : **SENVERSA PTY LTD**
Contact : EMMA WALSH
Address : Level 24, 1 Market St, Sydney NSW 2000
SYDNEY NSW 2000
Telephone : 02 8252 0000
Project : S20102 Wetherill Park WME
Order number : ----
C-O-C number : ----
Sampler : BEC CHAPPLE
Site : ----
Quote number : EN/103/21
No. of samples received : 2
No. of samples analysed : 2

Page : 1 of 6
Laboratory : Environmental Division Sydney
Contact : Khaleda Ataei
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : + 61 2 8784 8555
Date Samples Received : 10-Feb-2023 10:30
Date Analysis Commenced : 13-Feb-2023
Issue Date : 16-Feb-2023 16:15

ilac-MRA

NATA

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene 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.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**SW1**	**sw2**	**----**	**----**	**----**
			Sampling date / time	10-Feb-2023 00:00	10-Feb-2023 00:00	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2304342-001**	**ES2304342-002**	**--------**	**--------**	**--------**
				Result	Result	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**240**	**352**	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**86**	**69**	----	----	----
EG005(ED093)F: Dissolved Metals by ICP-AES								
Iron	7439-89-6	0.05	mg/L	**0.06**	**0.06**	----	----	----
Manganese	7439-96-5	0.01	mg/L	**0.01**	<0.01	----	----	----
EG020F: Dissolved Metals by ICP-MS								
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	**0.002**	**0.002**	----	----	----
Copper	7440-50-8	0.001	mg/L	**0.006**	**0.003**	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.001**	**0.001**	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.36**	**0.50**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.3**	**1.0**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**0.7**	**1.5**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.06**	**0.19**	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**SW1**	**sw2**	**----**	**----**	**----**
			Sampling date / time	10-Feb-2023 00:00	10-Feb-2023 00:00	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2304342-001**	**ES2304342-002**	--------	--------	--------
				Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued								
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<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	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**SW1**	**sw2**	**----**	**----**	**----**
			Sampling date / time	10-Feb-2023 00:00	10-Feb-2023 00:00	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2304342-001**	**ES2304342-002**	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>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	----	----	----
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	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**30.1**	**26.2**	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**59.0**	**53.2**	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**55.7**	**58.8**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**65.1**	**62.5**	----	----	----
Anthracene-d10	1719-06-8	1.0	%	**74.7**	**79.4**	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**68.6**	**85.7**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**132**	**117**	----	----	----
Toluene-D8	2037-26-5	2	%	**124**	**113**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**120**	**106**	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2304342**	Page	: 1 of 7
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Telephone	: + 61 2 8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 10-Feb-2023
Site	: ----	Issue Date	: 16-Feb-2023
Sampler	: BEC CHAPPLE	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2

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, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type Method	Count QC	 Regular	Rate (%) Actual	 Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	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: **WATER**

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

Method ***Container*** */ Client Sample ID(s)*	***Sample Date***	*Extraction / Preparation* ***Date extracted***	 *Due for extraction*	 *Evaluation*	*Analysis* ***Date analysed***	 *Due for analysis*	 *Evaluation*
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
SW1, sw2	**10-Feb-2023**	**----**	----	----	**14-Feb-2023**	17-Feb-2023	✓
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H)							
SW1, sw2	**10-Feb-2023**	**----**	----	----	**14-Feb-2023**	17-Feb-2023	✓
EG005(ED093)F: Dissolved Metals by ICP-AES							
Clear Plastic Bottle - Nitric Acid; Filtered (EG005F)							
SW1, sw2	**10-Feb-2023**	**----**	----	----	**16-Feb-2023**	09-Aug-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SW1, sw2	**10-Feb-2023**	**----**	----	----	**15-Feb-2023**	09-Aug-2023	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
SW1, sw2	**10-Feb-2023**	**----**	----	----	**16-Feb-2023**	10-Mar-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
SW1, sw2	**10-Feb-2023**	**----**	----	----	**15-Feb-2023**	10-Mar-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SW1, sw2	**10-Feb-2023**	**14-Feb-2023**	10-Mar-2023	✓	**15-Feb-2023**	10-Mar-2023	✓

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) SW1, sw2	**10-Feb-2023**	**14-Feb-2023**	10-Mar-2023	✓	**15-Feb-2023**	10-Mar-2023	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) SW1, sw2	**10-Feb-2023**	**13-Feb-2023**	17-Feb-2023	✓	**14-Feb-2023**	25-Mar-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) SW1, sw2	**10-Feb-2023**	**13-Feb-2023**	17-Feb-2023	✓	**14-Feb-2023**	25-Mar-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) SW1, sw2	**10-Feb-2023**	**13-Feb-2023**	17-Feb-2023	✓	**14-Feb-2023**	25-Mar-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SW1	**10-Feb-2023**	**14-Feb-2023**	24-Feb-2023	✓	**14-Feb-2023**	24-Feb-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) sw2	**10-Feb-2023**	**14-Feb-2023**	24-Feb-2023	✓	**15-Feb-2023**	24-Feb-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) SW1, sw2	**10-Feb-2023**	**13-Feb-2023**	17-Feb-2023	✓	**14-Feb-2023**	25-Mar-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SW1	**10-Feb-2023**	**14-Feb-2023**	24-Feb-2023	✓	**14-Feb-2023**	24-Feb-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) sw2	**10-Feb-2023**	**14-Feb-2023**	24-Feb-2023	✓	**15-Feb-2023**	24-Feb-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) SW1	**10-Feb-2023**	**14-Feb-2023**	24-Feb-2023	✓	**14-Feb-2023**	24-Feb-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) sw2	**10-Feb-2023**	**14-Feb-2023**	24-Feb-2023	✓	**15-Feb-2023**	24-Feb-2023	✓

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)							
Dissolved Mercury by FIMS	EG035F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	2	**50.00**	**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
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	17	**11.76**	**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
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	2	**50.00**	**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	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	17	**17.65**	**15.00**	✓	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
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	2	**50.00**	**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	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	**5.88**	**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
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							

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							
Dissolved Mercury by FIMS	EG035F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	2	**50.00**	**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	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	**5.88**	**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
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**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*
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)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-AES	EG005F	WATER	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. The ICPAES technique ionises the 0.45µm filtered samples, emitting a characteristic spectrum which is compared against matrix matched standards. 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).
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)
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*
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)

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)
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.

QUALITY CONTROL REPORT

Work Order	: **ES2304342**	Page	: 1 of 7
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Khaleda Ataei
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 8252 0000	Telephone	: + 61 2 8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 10-Feb-2023
Order number	: ----	Date Analysis Commenced	: 13-Feb-2023
C-O-C number	: ----	Issue Date	: 16-Feb-2023
Sampler	: BEC CHAPPLE		
Site	: ----		
Quote number	: EN/103/21		
No. of samples received	: 2		
No. of samples analysed	: 2		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)F: Dissolved Metals by ICP-AES (QC Lot: 4869828)									
ES2304342-002	sw2	EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG005F: Iron	7439-89-6	0.05	mg/L	0.06	0.06	0.0	No Limit
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 4870476)									
ES2304252-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	4550	4510	0.8	0% - 20%
ES2304358-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	38100000 µg/L	38800	2.0	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 4870477)									
ES2304252-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	11	14	26.3	No Limit
ES2304358-003	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	270000 µg/L	262	3.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 4869827)									
ES2304488-011	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: 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	0.003	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2304342-002	sw2	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	0.002	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	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

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 (%)*
EG035F: Dissolved Mercury by FIMS (QC Lot: 4869826)									
ES2304488-008	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	0.0004	0.0004	0.0	No Limit
ES2304342-002	sw2	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 4869687)									
ES2304232-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.25	1.22	2.9	0% - 20%
ES2304352-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 4869684)									
ES2304342-002	sw2	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.0	0.8	14.3	No Limit
ES2304232-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	4.8	4.4	10.0	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 4869683)									
ES2304342-002	sw2	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.19	0.17	7.2	0% - 50%
ES2304232-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	3.85	3.79	1.4	0% - 20%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4868872)									
ES2304473-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2304473-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4868872)									
ES2304473-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2304473-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 4868872)									
ES2304473-004	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
ES2304473-001	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

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*
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 4869828)								
EG005F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	108	82.0	114
EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	0.1 mg/L	91.1	81.0	113
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 4870476)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	94.6	87.0	109
				<10	293 mg/L	99.5	75.2	126
				<10	2340 mg/L	102	83.0	124
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 4870477)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	95.3	83.0	129
				<5	1000 mg/L	96.3	82.0	110
				<5	987 mg/L	93.6	83.0	118
EG020F: Dissolved Metals by ICP-MS (QCLot: 4869827)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	89.6	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	89.5	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	88.3	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	88.4	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.6	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	86.8	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.2	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 4869826)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.2	83.0	105
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 4869687)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	106	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 4869684)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	96.4	69.0	101
				<0.1	1 mg/L	94.4	70.0	118
				<0.1	5 mg/L	102	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 4869683)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	93.5	71.3	126
				<0.01	0.442 mg/L	90.4	71.3	126
				<0.01	1 mg/L	98.7	71.3	126
EP075(SIM)A: Phenolic Compounds (QCLot: 4866073)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	34.6	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	74.2	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	66.3	51.0	91.0

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*
EP075(SIM)A: Phenolic Compounds (QCLot: 4866073) - continued								
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	62.1	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	72.5	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	67.3	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	72.9	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	69.2	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	71.1	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	67.4	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	69.7	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	43.4	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4866073)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	72.1	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	84.9	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	75.1	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	72.2	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	77.5	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	89.5	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	71.1	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	79.4	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	66.4	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	71.5	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	70.4	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	79.6	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	69.2	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	66.2	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	66.5	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	68.7	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4866074)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	57.2	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	81.3	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	87.3	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4868872)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	95.2	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4866074)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	62.9	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	87.0	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	86.2	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4868872)								

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*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4868872) - continued								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	99.3	75.0	127
EP080: BTEXN (QCLot: 4868872)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.8	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	87.9	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	86.4	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	83.2	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	90.0	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.0	70.0	120

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 (%)*	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 4869828)							
ES2304342-001	SW1	EG005F: Manganese	7439-96-5	1 mg/L	108	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 4869827)							
ES2304488-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	91.9	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	93.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	89.0	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	91.2	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	87.3	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	90.6	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	91.3	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 4869826)							
ES2304342-001	SW1	EG035F: Mercury	7439-97-6	0.01 mg/L	89.4	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 4869687)							
ES2304232-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	103	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 4869684)							
ES2304233-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	82.4	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 4869683)							
ES2304233-001	Anonymous	EK067G: Total Phosphorus as P	----	10 mg/L	92.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4868872)							
ES2304473-001	Anonymous						

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: 4868872) - continued							
ES2304473-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	108	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4868872)							
ES2304473-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	112	70.0	130
EP080: BTEXN (QCLot: 4868872)							
ES2304473-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	85.3	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	93.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	98.8	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	99.4	70.0	130

ALS

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 2-1 Burma Road Pooraka SA 5095
Ph: 08 8162 5130 E: adelaide@alsglobal.com

☐BRISBANE 2 Byth Street Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Gladstone QLD 4680
Ph: 07 4978 7944 E: ALSEnviro.Gladstone@alsglobal.com

☐MACKAY Unit 2/20 Caterpillar Drive Paget QLD 4740
Ph: 07 4952 5795 E: ALSEnviro.Mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171
Ph: 03 8549 9600 E: coc.melbourne@alsglobal.com

☐MUDGEE 1/29 Sydney Road Mudgee NSW 2850
Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304
Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541
Ph: 02 4423 2063 E: nowra@alsglobal.com

☐PERTH 26 Rigali Way Wangara WA 6065
Ph: 08 9406 1301 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164
Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 13 Carlton Street Kirwan QLD 4817
Ph: 07 4773 0000 E: ALSEnviro.Townsville@alsglobal.com

☐WOLLONGONG 4/19-21 Ralph Black Drive, Nth Wollongong NSW 2500
Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: Senversa
OFFICE:
PROJECT: Redirect Wetherill Park **PROJECT NO.:** 20102
ORDER NUMBER: **PURCHASE ORDER NO.:**
PROJECT MANAGER: Bec Chapple **CONTACT PH:**
SAMPLER: Hayley Yellowlees **SAMPLER MOBILE:** 0429 722968
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**
Email Reports to (will default to PM if no other addresses are listed): bec.chapple@senversa.com.au
Email Invoice to (will default to PM if no other addresses are listed): supplieraccounts@senversa.com.au
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)
☒ Standard TAT **(List due date):**
☐ Non Standard or urgent TAT **(List due date):**

ALS QUOTE NO.:
COUNTRY OF ORIGIN:

COC SEQUENCE NUMBER (Circle)
COC: [✓ 1] 2 3 4 5 6 7
OF: [✓ 1] 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No N/A
Free ice / frozen ice bricks present upon receipt? Yes No N/A
Random Sample Temperature on Receipt: °C
Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
H Yellowlees			ZRW
DATE/TIME: 14/8/23 5:45PM	DATE/TIME:	DATE/TIME:	DATE/TIME: 14/8/23 1803

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	W-26	W-2 (8M)	W-14A CPAH/phenol)	NT-11	NT-8	W-18	pH	Total dissolved solids (TDS) + Suspended Solids (TSS)	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	MW1	14/8/23	W		6	X				X				
2	MW2					X				X				
3	MW3					X				X				
4	MW4					X				X				
5	MW6					X				X				
6	SW1				5		X	X	X			X	X	
7	SW2				5		X	X	X			X	X	
8	QC102				5	X								
9	QC302				~~5~~4									
10	QC402				1						X			TRIP Blank
11	QC502				1						X			TRIP spike.
				TOTAL										

HT

Environmental Division
Sydney
Work Order Reference
ES2327328

Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2327328**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: BEC CHAPPLE	Contact	: Khaleda Ataei
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: bec.chapple@senversa.com.au	E-mail	: khaleda.ataei@alsglobal.com
Telephone	: ----	Telephone	: + 61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 20102 REDIRECT WETHERILL PARK	Page	: 1 of 3
Order number	: ----	Quote number	: EM2020SENVER0016 (EN/103/21)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Hayley Yellowlees		

Dates

Date Samples Received	: 14-Aug-2023 17:45	Issue Date	: 14-Aug-2023
Client Requested Due Date	: 18-Aug-2023	Scheduled Reporting Date	: **18-Aug-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.8'C,12.2'C,13.9'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 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 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 direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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 - EA015H Total Dissolved Solids - Standard Level	WATER - EA025H Suspended Solids - Standard Level	WATER - NT-08 Total Nitrogen + NO2 + NO3 + NH3 + Total P	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-02 8 Metals	WATER - W-14A PAH/Phenols (SIM)	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES2327328-001	14-Aug-2023 00:00	MW1			✓				✓
ES2327328-002	14-Aug-2023 00:00	MW2			✓				✓
ES2327328-003	14-Aug-2023 00:00	MW3			✓				✓
ES2327328-004	14-Aug-2023 00:00	MW4			✓				✓
ES2327328-005	14-Aug-2023 00:00	MW6			✓				✓
ES2327328-006	14-Aug-2023 00:00	SW1	✓	✓		✓	✓	✓	
ES2327328-007	14-Aug-2023 00:00	SW2	✓	✓		✓	✓	✓	
ES2327328-008	14-Aug-2023 00:00	QC102							✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) WATER No analysis requested	WATER - EA005P pH (Auto Titrator)	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2327328-006	14-Aug-2023 00:00	SW1		✓		
ES2327328-007	14-Aug-2023 00:00	SW2		✓		
ES2327328-009	14-Aug-2023 00:00	QC302	✓			
ES2327328-010	31-Jul-2023 00:00	QC402 TRIP SPIKE			✓	
ES2327328-011	01-Aug-2023 00:00	QC502 TRIP BLANK				✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

BEC CHAPPLE

- *AU Certificate of Analysis - NATA (COA)	Email	bec.chapple@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bec.chapple@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bec.chapple@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bec.chapple@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	bec.chapple@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	bec.chapple@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	bec.chapple@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

CERTIFICATE OF ANALYSIS

Work Order : **ES2327328**
Amendment : **2**
Client : **SENVERSA PTY LTD**
Contact : BEC CHAPPLE
Address : Level 24, 1 Market St, Sydney NSW 2000
SYDNEY NSW 2000
Telephone : ----
Project : 20102 REDIRECT WETHERILL PARK
Order number : ----
C-O-C number : ----
Sampler : Hayley Yellowlees
Site : ----
Quote number : EN/103/21
No. of samples received : 11
No. of samples analysed : 11

Page : 1 of 10
Laboratory : Environmental Division Sydney
Contact : Khaleda Ataei
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : + 61 2 8784 8555
Date Samples Received : 14-Aug-2023 17:45
Date Analysis Commenced : 14-Aug-2023
Issue Date : 23-Aug-2023 12:16

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
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

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.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene 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.
- EG020: LORs have been raised for some samples due to matrix interference (High sample salinity)
- Amendment (23/08/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F for samples 001-009.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW1**	**MW2**	**MW3**	**MW4**	**MW6**
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2327328-001**	**ES2327328-002**	**ES2327328-003**	**ES2327328-004**	**ES2327328-005**
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.008**	**0.004**	<0.010	**0.007**	**0.002**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0010	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.010	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.010	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	**0.036**	**0.005**	**0.207**	**0.020**	**0.002**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.010	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	**0.045**	**0.009**	**0.122**	<0.005	**0.006**
Manganese	7439-96-5	0.001	mg/L	**2.26**	**1.00**	**6.39**	**6.04**	**0.225**
Iron	7439-89-6	0.05	mg/L	**2.01**	**0.58**	**5.64**	**2.91**	**0.20**
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	**0.49**	**0.52**	**0.29**	**0.32**	**0.09**
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	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**0.02**	<0.01	<0.01	<0.01	**0.18**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.02**	<0.01	<0.01	<0.01	**0.18**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.6**	**0.6**	**0.4**	**0.5**	**0.4**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**0.6**	**0.6**	**0.4**	**0.5**	**0.6**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.02**	**0.04**	**0.02**	**0.01**	**0.14**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW1**	**MW2**	**MW3**	**MW4**	**MW6**
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2327328-001**	**ES2327328-002**	**ES2327328-003**	**ES2327328-004**	**ES2327328-005**
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
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

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**MW1**	**MW2**	**MW3**	**MW4**	**MW6**
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00
Compound	CAS Number	LOR	Unit	**ES2327328-001**	**ES2327328-002**	**ES2327328-003**	**ES2327328-004**	**ES2327328-005**
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**22.9**	**22.8**	**26.0**	**20.8**	**21.5**
2-Chlorophenol-D4	93951-73-6	1.0	%	**50.6**	**51.0**	**57.1**	**47.4**	**48.6**
2.4.6-Tribromophenol	118-79-6	1.0	%	**42.6**	**40.1**	**48.2**	**42.4**	**38.5**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**63.7**	**62.6**	**69.8**	**58.0**	**60.5**
Anthracene-d10	1719-06-8	1.0	%	**78.5**	**75.9**	**82.2**	**72.3**	**72.0**
4-Terphenyl-d14	1718-51-0	1.0	%	**85.5**	**84.1**	**89.2**	**82.0**	**79.2**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**121**	**117**	**110**	**116**	**97.2**
Toluene-D8	2037-26-5	2	%	**110**	**113**	**116**	**112**	**99.9**
4-Bromofluorobenzene	460-00-4	2	%	**124**	**125**	**123**	**120**	**107**

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**SW1**	**SW2**	**QC102**	**QC302**	**QC402** **TRIP SPIKE**
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	31-Jul-2023 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2327328-006**	**ES2327328-007**	**ES2327328-008**	**ES2327328-009**	**ES2327328-010**
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**8.03**	**7.75**	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**316**	**105**	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**238**	**39**	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.001**	<0.001	<0.010	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0010	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	**0.001**	<0.001	<0.010	<0.001	----
Copper	7440-50-8	0.001	mg/L	**0.004**	**0.001**	<0.010	<0.001	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	**0.205**	<0.001	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.010	<0.001	----
Zinc	7440-66-6	0.005	mg/L	**0.005**	**0.038**	**0.074**	<0.005	----
Manganese	7439-96-5	0.001	mg/L	**0.016**	**0.007**	**6.57**	**0.038**	----
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	**6.04**	<0.05	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.68**	**0.62**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.7**	**0.7**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**2.4**	**1.3**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.35**	**0.09**	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

			Sample ID	SW1	SW2	QC102	QC302	QC402 TRIP SPIKE
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	31-Jul-2023 00:00
Compound	CAS Number	LOR	Unit	ES2327328-006	ES2327328-007	ES2327328-008	ES2327328-009	ES2327328-010
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	<50	<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	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**SW1**	**SW2**	**QC102**	**QC302**	**QC402** **TRIP SPIKE**
			Sampling date / time	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	14-Aug-2023 00:00	31-Jul-2023 00:00
Compound	CAS Number	LOR	Unit	**ES2327328-006**	**ES2327328-007**	**ES2327328-008**	**ES2327328-009**	**ES2327328-010**
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	<100	<100	<100	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	<100	<100	<100	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	**16**
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	**16**
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	**17**
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	**18**
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	**19**
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	<2	**37**
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	<1	**86**
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	**17**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**23.9**	**23.1**	**22.4**	**19.8**	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**52.5**	**51.4**	**47.7**	**49.2**	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**50.5**	**54.1**	**42.3**	**40.1**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**67.4**	**67.4**	**57.2**	**64.8**	----
Anthracene-d10	1719-06-8	1.0	%	**86.2**	**85.2**	**71.5**	**71.2**	----
4-Terphenyl-d14	1718-51-0	1.0	%	**87.7**	**86.7**	**76.6**	**78.4**	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**99.7**	**111**	**114**	**112**	**98.0**
Toluene-D8	2037-26-5	2	%	**105**	**110**	**108**	**110**	**116**
4-Bromofluorobenzene	460-00-4	2	%	**115**	**115**	**119**	**122**	**123**

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**QC502 TRIP BLANK**	----	----	----	----
			Sampling date / time	01-Aug-2023 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2327328-011**	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
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	----	----	----	----
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	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**96.6**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**115**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**121**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2327328**	Page	: 1 of 9
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: BEC CHAPPLE	Telephone	: + 61 2 8784 8555
Project	: 20102 REDIRECT WETHERILL PARK	Date Samples Received	: 14-Aug-2023
Site	: ----	Issue Date	: 23-Aug-2023
Sampler	: Hayley Yellowlees	No. of samples received	: 11
Order number	: ----	No. of samples analysed	: 11

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, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC 0	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	18	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	18	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: **WATER**

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

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
Container */ Client Sample ID(s)*		***Date extracted***	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) SW1, SW2	**14-Aug-2023**	**----**	----	----	**14-Aug-2023**	14-Aug-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) SW1, SW2	**14-Aug-2023**	**----**	----	----	**17-Aug-2023**	21-Aug-2023	✓
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H) SW1, SW2	**14-Aug-2023**	**----**	----	----	**17-Aug-2023**	21-Aug-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) MW1, MW2, MW3, MW4, MW6, SW1, SW2, QC102, QC302	**14-Aug-2023**	**----**	----	----	**16-Aug-2023**	10-Feb-2024	✓

Matrix: **WATER**

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

Method	**Sample Date**	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		**Date extracted**	Due for extraction	Evaluation	**Date analysed**	Due for analysis	Evaluation
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) MW1, MW2, MW3, MW4, MW6, SW1, SW2, QC102, QC302	**14-Aug-2023**	**----**	----	----	**17-Aug-2023**	11-Sep-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) MW1, MW2, MW3, MW4, MW6	**14-Aug-2023**	**----**	----	----	**17-Aug-2023**	11-Sep-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) MW1, MW2, MW3, MW4, MW6	**14-Aug-2023**	**----**	----	----	**16-Aug-2023**	16-Aug-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) MW1, MW2, MW3, MW4, MW6, SW1, SW2	**14-Aug-2023**	**----**	----	----	**17-Aug-2023**	11-Sep-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) MW1, MW2, MW3, MW4, MW6, SW1, SW2	**14-Aug-2023**	**16-Aug-2023**	11-Sep-2023	✓	**17-Aug-2023**	11-Sep-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) MW1, MW2, MW3, MW4, MW6, SW1, SW2	**14-Aug-2023**	**16-Aug-2023**	11-Sep-2023	✓	**17-Aug-2023**	11-Sep-2023	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) SW1, SW2	**14-Aug-2023**	**16-Aug-2023**	21-Aug-2023	✓	**17-Aug-2023**	25-Sep-2023	✓

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)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW1, MW2, MW3, MW4, MW6, SW1, SW2	**14-Aug-2023**	**16-Aug-2023**	21-Aug-2023	✓	**17-Aug-2023**	25-Sep-2023	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC102, QC302	**14-Aug-2023**	**16-Aug-2023**	21-Aug-2023	✓	**18-Aug-2023**	25-Sep-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) MW1, MW2, MW3, MW4, MW6, SW1, SW2, QC102, QC302	**14-Aug-2023**	**16-Aug-2023**	21-Aug-2023	✓	**17-Aug-2023**	25-Sep-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC502 - TRIP BLANK	**01-Aug-2023**	**14-Aug-2023**	15-Aug-2023	✓	**14-Aug-2023**	15-Aug-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1, MW2, MW3, MW4, MW6, SW1, SW2, QC102, QC302	**14-Aug-2023**	**17-Aug-2023**	28-Aug-2023	✓	**17-Aug-2023**	28-Aug-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) MW1, MW2, MW3, MW4, MW6, SW1, SW2, QC102, QC302	**14-Aug-2023**	**16-Aug-2023**	21-Aug-2023	✓	**17-Aug-2023**	25-Sep-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC502 - TRIP BLANK	**01-Aug-2023**	**14-Aug-2023**	15-Aug-2023	✓	**14-Aug-2023**	15-Aug-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1, MW2, MW3, MW4, MW6, SW1, SW2, QC102, QC302	**14-Aug-2023**	**17-Aug-2023**	28-Aug-2023	✓	**17-Aug-2023**	28-Aug-2023	✓

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) QC502 - TRIP BLANK	**01-Aug-2023**	**14-Aug-2023**	15-Aug-2023	✓	**14-Aug-2023**	15-Aug-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1, MW2, MW3, MW4, MW6, SW1, SW2, QC102, QC302	**14-Aug-2023**	**17-Aug-2023**	28-Aug-2023	✓	**17-Aug-2023**	28-Aug-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC402 - TRIP SPIKE	**31-Jul-2023**	**14-Aug-2023**	14-Aug-2023	✓	**14-Aug-2023**	14-Aug-2023	✓

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)							
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	39	**10.26**	**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
Nitrite as N by Discrete Analyser	EK057G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	16	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**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 Phosphorus as P By Discrete Analyser	EK067G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	18	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	25	**12.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	**5.13**	**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
Nitrite as N by Discrete Analyser	EK057G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	16	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	**5.13**	**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
Nitrite as N by Discrete Analyser	EK057G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	16	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**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 Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	25	**8.00**	**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
Dissolved Mercury by FIMS	EG035F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	**5.13**	**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
Nitrite as N by Discrete Analyser	EK057G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	16	**0.00**	**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 Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	18	**0.00**	**5.00**	✘	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	25	**8.00**	**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 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)
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)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of \`non-filterable\` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . 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).
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)

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
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)
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)
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)

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)
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.

QUALITY CONTROL REPORT

Work Order	: **ES2327328**	Page	: 1 of 11
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: BEC CHAPPLE	Contact	: Khaleda Ataei
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: + 61 2 8784 8555
Project	: 20102 REDIRECT WETHERILL PARK	Date Samples Received	: 14-Aug-2023
Order number	: ----	Date Analysis Commenced	: 14-Aug-2023
C-O-C number	: ----	Issue Date	: 23-Aug-2023
Sampler	: Hayley Yellowlees		
Site	: ----		
Quote number	: EN/103/21		
No. of samples received	: 11		
No. of samples analysed	: 11		

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
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

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: **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: 5233621)									
ES2327282-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.64	7.72	1.0	0% - 20%
ES2327333-005	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.64	7.67	0.4	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5239101)									
ES2327006-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	160	157	1.9	0% - 50%
ES2327035-005	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	47200000 µg/L	44600	5.5	0% - 20%
ES2327110-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1680	1580	5.9	0% - 20%
EW2303543-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	530	537	1.3	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 5239102)									
ES2327006-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
ES2327035-005	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	30000 µg/L	43	34.8	No Limit
ES2327110-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	356	310	14.0	0% - 20%
EW2303543-002	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5236663)									
ES2327041-001	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: Copper	7440-50-8	0.001	mg/L	0.002	0.002	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	0.022	0.022	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	0.088	0.088	0.0	0% - 50%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.18	0.18	0.0	No Limit
ES2327081-001	Anonymous	EG020A-F: Cadmium	7440-43-9	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 (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5236663) - continued									
ES2327081-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	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	0.104	0.099	4.9	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.006	0.005	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	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: 5236666)									
EW2303610-001	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: 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	0.060	0.060	1.7	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: Iron	7439-89-6	0.05	mg/L	0.07	0.07	0.0	No Limit
EW2303629-005	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	<0.001	<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	0.050	0.051	2.2	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: Iron	7439-89-6	0.05	mg/L	0.13	0.22	47.9	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5236665)									
ES2327080-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2327328-002	MW2	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: 5238030)									
ES2327281-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.02	0.0	No Limit
ES2327328-003	MW3	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.29	0.29	0.0	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5237562)									
ES2327328-003	MW3	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2327281-001	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: 5238031)									
ES2327281-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.09	0.09	0.0	No Limit
ES2327328-003	MW3	EK059G: Nitrite + Nitrate as N	----	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 (%)*
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5238027)									
ES2327281-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.9	0.9	0.0	No Limit
ES2327328-002	MW2	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: 5238026)									
ES2327281-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.04	0.04	0.0	No Limit
ES2327328-002	MW2	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.04	0.04	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5233625)									
ES2327291-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5236018)									
ES2327093-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2327167-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5233625)									
ES2327291-001	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: 5236018)									
ES2327093-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2327167-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5233625)									
ES2327291-001	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
EP080: BTEXN (QC Lot: 5236018)									
ES2327093-001	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
ES2327167-001	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

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: 5233621)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	99.8	98.8	101
				----	7 pH Unit	99.8	99.2	101
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5239101)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	101	87.0	109
				<10	293 mg/L	102	75.2	126
				<10	2380 mg/L	103	83.0	124
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5239102)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	102	83.0	129
				<5	1000 mg/L	98.0	82.0	110
				<5	931 mg/L	102	83.0	118
EG020F: Dissolved Metals by ICP-MS (QCLot: 5236663)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.1	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.0	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.0	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.5	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.8	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	101	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.1	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	99.4	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5236666)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.8	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.9	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	101	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.8	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	99.1	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.0	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	106	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	97.7	82.0	112
EG035F: Dissolved Mercury by FIMS (QCLot: 5236665)								

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*
EG035F: Dissolved Mercury by FIMS (QCLot: 5236665) - continued								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	92.8	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5238030)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	102	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5237562)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	104	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5238031)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	103	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5238027)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1 <0.1 <0.1	10 mg/L 1 mg/L 5 mg/L	89.1 89.2 91.0	69.0 70.0 70.0	101 118 130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5238026)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01 <0.01 <0.01	4.42 mg/L 0.442 mg/L 1 mg/L	87.1 87.0 97.4	71.3 71.3 70.0	126 126 130
EP075(SIM)A: Phenolic Compounds (QCLot: 5235620)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	33.4	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	68.8	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	77.5	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	63.5	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	75.4	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	71.7	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	68.2	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	69.9	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	71.2	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	71.8	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	76.0	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	33.4	10.0	95.0
EP075(SIM)A: Phenolic Compounds (QCLot: 5235874)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	35.5	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	72.2	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	66.5	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	59.0	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	66.8	48.0	100

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*
EP075(SIM)A: Phenolic Compounds (QCLot: 5235874) - continued								
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	72.6	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	66.7	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	73.2	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	73.1	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	67.1	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	77.8	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	35.7	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5235620)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	66.7	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	72.0	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	72.0	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	73.8	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	70.4	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	93.1	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	76.7	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	78.3	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	78.2	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	77.0	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	71.7	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	85.5	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	78.8	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	68.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	70.2	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	69.0	59.1	118
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5235874)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	70.9	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	76.6	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	80.4	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	79.3	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	75.7	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	91.4	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	81.0	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	83.4	63.1	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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5235874) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	73.5	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	87.1	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	69.2	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	76.0	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	83.0	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	68.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	69.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	71.0	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5233625)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	101	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5235621)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	66.4	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	80.9	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	91.1	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5235873)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	83.4	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	88.5	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	79.5	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5236018)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	93.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5233625)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	98.0	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5235621)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	79.7	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	80.9	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	93.4	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5235873)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	66.9	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	89.5	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	89.3	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5236018)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	99.5	75.0	127
EP080: BTEXN (QCLot: 5233625)								

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: 5233625) - continued								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	91.7	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	92.1	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	89.1	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	99.7	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	84.2	75.5	124
EP080: BTEXN (QCLot: 5236018)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.0	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	95.6	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	102	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	102	75.5	124

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	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5236663)							
ES2327041-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	106	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	98.2	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	98.4	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	105	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	95.7	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	93.8	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	97.4	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	98.0	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5236666)							
ES2327328-005	MW6	EG020A-F: Arsenic	7440-38-2	1 mg/L	109	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	126	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	118	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	108	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: 5236666) - continued							
ES2327328-005	MW6	EG020A-F: Lead	7439-92-1	1 mg/L	115	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	125	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	129	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	103	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5236665)							
ES2327080-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	89.1	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5238030)							
ES2327281-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	119	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5237562)							
ES2327281-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	112	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5238031)							
ES2327281-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	110	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5238027)							
ES2327281-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	88.5	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5238026)							
ES2327281-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	92.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5233625)							
ES2327291-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	127	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5236018)							
ES2327093-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	88.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5233625)							
ES2327291-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	128	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5236018)							
ES2327093-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	90.7	70.0	130
EP080: BTEXN (QCLot: 5233625)							
ES2327291-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	106	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	112	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	123	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	128	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	126	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	94.9	70.0	130
EP080: BTEXN (QCLot: 5236018)							
ES2327093-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.5	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	91.4	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
EP080: BTEXN (QCLot: 5236018) - continued							
ES2327093-001	Anonymous	EP080: Ethylbenzene	100-41-4	25 µg/L	100.0	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	101	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	86.1	70.0	130

senversa

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Chain of Custody Documentation

HT

Laboratory:
Address:
Contact:
Phone:

Job Number:	S 20102	**Purchase Order:**	
Project Name:	Wetherill Park WME	**Quote No:**	EN/103/21
Sampled By:	Rowan Faint	**Turn Around Time:**	Standard
Project Manager:	Emma Walsh	**Page:**	1 of 1
Email Report To:	rowan.faint / emma.walsh / sec.sample @ senessa.com.au	**Phone/Mobile:**	0420218472

Sample Information					Container Information		Analysis Required											
Lab ID	**Sample ID**	**Matrix ***	**Date**	**Time**	**Type / Code**	**Total Bottles**	W-27 (TRH/BTEX/PAH/ 8 metals / Phenols)	NT-11 (TN, TP)	EA015H (TDS)	EA025H (TSS)	EG005T (Fe and Mn)	W-18 (TRH, BTEX)					HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
1	SW 1	W	7/2/24			6	X	X	X	X	X							
2	SW 2	W	7/2/24			6	X	X	X	X	X							
3	QC403 TB	W	7/2/24			1						X						
4	QC503 TS	W	7/2/24			1						X						
Total																		

Environmental Division
Sydney
Work Order Reference
ES2403942

Telephone : + 61-2-8784 8555

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:** Rowan Faint		**Signature:** R Faint		**Date:** 7/2/24

Relinquished By:		**Method of Shipment (if applicable):**	**Received by:**	
Name/Signature: Rowan Faint	Date: 7/2/24	Carrier / Reference #:	Name/Signature: WCAS / TAW	Date: 7/2/24
Of: SenvSa	Time: 3:15pm	Date/Time:	Of: 218	Time: 1546
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: ________
Checked by: ________

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2403942**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Sandy Phan
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Emma.Walsh@senversa.com.au	E-mail	: sandy.phan@alsglobal.com
Telephone	: 02 8252 0000	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: S20102 Wetherill Park WME	Page	: 1 of 2
Order number	: ----	Quote number	: EB2023SENVER0001 (EN/000)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Rowan Faint		

Dates

Date Samples Received	: 07-Feb-2024 15:46	Issue Date	: 08-Feb-2024
Client Requested Due Date	: 15-Feb-2024	Scheduled Reporting Date	: **15-Feb-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.3'C, 14.4'C, 16.2'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

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 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 direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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 - EA015H Total Dissolved Solids - Standard Level	WATER - EA025H Suspended Solids - Standard Level	WATER - EG005F Dissolved Metals by ICPAES	WATER - EP080 BTEXN	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES2403942-001	07-Feb-2024 00:00	SW 1	✓	✓	✓		✓		✓
ES2403942-002	07-Feb-2024 00:00	SW 2	✓	✓	✓		✓		✓
ES2403942-003	05-Feb-2024 00:00	QC403						✓	
ES2403942-004	05-Feb-2024 00:00	QC503				✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

BEC CHAPPLE

- *AU Certificate of Analysis - NATA (COA)	Email	bec.chapple@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bec.chapple@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bec.chapple@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bec.chapple@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	bec.chapple@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	bec.chapple@senversa.com.au

EMMA WALSH

- *AU Certificate of Analysis - NATA (COA)	Email	Emma.Walsh@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Emma.Walsh@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	Emma.Walsh@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Emma.Walsh@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Emma.Walsh@senversa.com.au

Rowan Faint

- *AU Certificate of Analysis - NATA (COA)	Email	rowan.faint@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	rowan.faint@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	rowan.faint@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	rowan.faint@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	rowan.faint@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	rowan.faint@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **ES2403942**	Page	: 1 of 7
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Sandy Phan
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 8252 0000	Telephone	: +61-2-8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 07-Feb-2024 15:46
Order number	: ----	Date Analysis Commenced	: 08-Feb-2024
C-O-C number	: ----	Issue Date	: 15-Feb-2024 14:03
Sampler	: Rowan Faint		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 4		
No. of samples analysed	: 4		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

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.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene 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.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	SW 1	SW 2	QC403	QC503	----
			Sampling date / time	07-Feb-2024 00:00	07-Feb-2024 00:00	05-Feb-2024 00:00	05-Feb-2024 00:00	----
				ES2403942-001	**ES2403942-002**	**ES2403942-003**	**ES2403942-004**	--------
				Result	Result	Result	Result	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**374**	**394**	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**91**	**8**	----	----	----
EG005(ED093)F: Dissolved Metals by ICP-AES								
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	----	----	----
Manganese	7439-96-5	0.01	mg/L	**0.02**	<0.01	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.001**	**0.003**	----	----	----
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	**0.004**	**0.004**	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	**0.014**	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.41**	**0.28**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.7**	**0.9**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**2.1**	**1.2**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.10**	**0.03**	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SW 1	SW 2	QC403	QC503	----
			Sampling date / time	07-Feb-2024 00:00	07-Feb-2024 00:00	05-Feb-2024 00:00	05-Feb-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2403942-001	ES2403942-002	ES2403942-003	ES2403942-004	--------
				Result	Result	Result	Result	----
EP075(SIM)A: Phenolic Compounds - Continued								
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

			Sample ID	**SW 1**	**SW 2**	**QC403**	**QC503**	**----**
			Sampling date / time	07-Feb-2024 00:00	07-Feb-2024 00:00	05-Feb-2024 00:00	05-Feb-2024 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2403942-001**	**ES2403942-002**	**ES2403942-003**	**ES2403942-004**	**--------**
				Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	**490**	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	**560**	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	**1050**	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L	**630**	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	**460**	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	**1090**	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	**630**	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	**20**	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	**18**	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	**17**	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	**16**	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	**16**	----
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	**32**	----
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	**87**	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	**16**	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**25.8**	**26.8**	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**SW 1**	**SW 2**	**QC403**	**QC503**	**----**
			Sampling date / time	07-Feb-2024 00:00	07-Feb-2024 00:00	05-Feb-2024 00:00	05-Feb-2024 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2403942-001**	**ES2403942-002**	**ES2403942-003**	**ES2403942-004**	**--------**
				Result	Result	Result	Result	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2-Chlorophenol-D4	93951-73-6	1.0	%	**51.8**	**54.8**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	1.0	%	**58.8**	**72.6**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**76.4**	**74.8**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	1.0	%	**92.4**	**75.5**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	1.0	%	**92.6**	**89.0**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**122**	**134**	**115**	**101**	**----**
Toluene-D8	2037-26-5	2	%	**119**	**129**	**114**	**109**	**----**
4-Bromofluorobenzene	460-00-4	2	%	**122**	**135**	**104**	**97.7**	**----**

Surrogate Control Limits

Sub-Matrix: **WATER**

		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2403942**	Page	: 1 of 8
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Telephone	: +61-2-8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 07-Feb-2024
Site	: ----	Issue Date	: 15-Feb-2024
Sampler	: Rowan Faint	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **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							
EG020F: Dissolved Metals by ICP-MS	ES2403761--003	Anonymous	**Zinc**	7440-66-6	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	ES2403912--001	Anonymous	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK067G: Total Phosphorus as P by Discrete Analyser	ES2403868--001	Anonymous	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

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	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	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: **WATER**

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

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
***Container** / Client Sample ID(s)*		***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) SW 1, SW 2	**07-Feb-2024**	**----**	----	----	**13-Feb-2024**	14-Feb-2024	✓
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H) SW 1, SW 2	**07-Feb-2024**	**----**	----	----	**13-Feb-2024**	14-Feb-2024	✓

Matrix: **WATER**

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

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
***Container** / Client Sample ID(s)*		***Date extracted***	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EG005(ED093)F: Dissolved Metals by ICP-AES							
Clear Plastic Bottle - Nitric Acid; Filtered (EG005F) SW 1, SW 2	**07-Feb-2024**	**----**	----	----	**09-Feb-2024**	05-Aug-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SW 1, SW 2	**07-Feb-2024**	**----**	----	----	**08-Feb-2024**	05-Aug-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SW 1, SW 2	**07-Feb-2024**	**----**	----	----	**12-Feb-2024**	06-Mar-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) SW 1, SW 2	**07-Feb-2024**	**----**	----	----	**12-Feb-2024**	06-Mar-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) SW 1, SW 2	**07-Feb-2024**	**12-Feb-2024**	06-Mar-2024	✓	**12-Feb-2024**	06-Mar-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) SW 1, SW 2	**07-Feb-2024**	**12-Feb-2024**	06-Mar-2024	✓	**12-Feb-2024**	06-Mar-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) SW 1, SW 2	**07-Feb-2024**	**08-Feb-2024**	14-Feb-2024	✓	**13-Feb-2024**	19-Mar-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) SW 1, SW 2	**07-Feb-2024**	**08-Feb-2024**	14-Feb-2024	✓	**13-Feb-2024**	19-Mar-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) SW 1, SW 2	**07-Feb-2024**	**08-Feb-2024**	14-Feb-2024	✓	**12-Feb-2024**	19-Mar-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC403	**05-Feb-2024**	**13-Feb-2024**	19-Feb-2024	✓	**14-Feb-2024**	19-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SW 1, SW 2	**07-Feb-2024**	**09-Feb-2024**	21-Feb-2024	✓	**10-Feb-2024**	21-Feb-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) SW 1, SW 2	**07-Feb-2024**	**08-Feb-2024**	14-Feb-2024	✓	**12-Feb-2024**	19-Mar-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC403	**05-Feb-2024**	**13-Feb-2024**	19-Feb-2024	✓	**14-Feb-2024**	19-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SW 1, SW 2	**07-Feb-2024**	**09-Feb-2024**	21-Feb-2024	✓	**10-Feb-2024**	21-Feb-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: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
QC403,	QC503	**05-Feb-2024**	**13-Feb-2024**	19-Feb-2024	✓	**14-Feb-2024**	19-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
SW 1,	SW 2	**07-Feb-2024**	**09-Feb-2024**	21-Feb-2024	✓	**10-Feb-2024**	21-Feb-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: **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)							
Dissolved Mercury by FIMS	EG035F	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	18	**11.11**	**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	0	4	**0.00**	**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)							
Dissolved Mercury by FIMS	EG035F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	39	**12.82**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	18	**16.67**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	18	**16.67**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**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)							
Dissolved Mercury by FIMS	EG035F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	18	**5.56**	**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	1	4	**25.00**	**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)							

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							
Dissolved Mercury by FIMS	EG035F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	18	**5.56**	**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	0	4	**0.00**	**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*
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)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-AES	EG005F	WATER	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. The ICPAES technique ionises the 0.45µm filtered samples, emitting a characteristic spectrum which is compared against matrix matched standards. 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).
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)
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*
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)

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)
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.

QUALITY CONTROL REPORT

Work Order	: **ES2403942**	Page	: 1 of 9
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Sandy Phan
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 8252 0000	Telephone	: +61-2-8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 07-Feb-2024
Order number	: ----	Date Analysis Commenced	: 08-Feb-2024
C-O-C number	: ----	Issue Date	: 15-Feb-2024
Sampler	: Rowan Faint		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 4		
No. of samples analysed	: 4		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

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 (%)*
EG005(ED093)F: Dissolved Metals by ICP-AES (QC Lot: 5590163)									
ES2403595-002	Anonymous	EG005F: Manganese	7439-96-5	0.01	mg/L	47.0	47.8	1.6	0% - 20%
		EG005F: Iron	7439-89-6	0.05	mg/L	175	178	2.0	0% - 20%
ES2403942-002	SW 2	EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG005F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5598190)									
ES2403942-001	SW 1	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	374	367	1.9	0% - 20%
ES2404000-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	182	212	14.8	0% - 20%
ES2404300-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	36	47	27.2	No Limit
EW2400609-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	146	145	0.0	0% - 50%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 5598191)									
ES2403942-001	SW 1	EA025H: Suspended Solids (SS)	----	5	mg/L	91	77	16.6	0% - 50%
ES2404000-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	140	130	7.6	0% - 20%
ES2404300-002	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	10	9	12.7	No Limit
EW2400609-004	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5590161)									
ES2403595-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0026	0.0026	0.0	0% - 20%
		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	0.025	0.024	0.0	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	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: 5590161) - continued									
ES2403595-001	Anonymous	EG020A-F: Nickel	7440-02-0	0.001	mg/L	1.45	1.43	1.6	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	2.04	2.01	1.2	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 5590159)									
ES2403761-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	0.0070	0.0074	5.3	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5594704)									
ES2403912-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	6.88	6.79	1.3	0% - 20%
ES2403955-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.03	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5594699)									
ES2403852-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	27.9	26.8	4.2	0% - 20%
ES2403919-008	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.9	2.4	18.8	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5594700)									
ES2403852-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	8.31	8.35	0.5	0% - 20%
ES2403919-008	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.04	0.03	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5593731)									
ES2403857-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<0.02 mg/L	<20	0.0	No Limit
ES2403857-046	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<0.02 mg/L	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5596095)									
ES2403888-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2403888-008	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5593731)									
ES2403857-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<0.02 mg/L	<20	0.0	No Limit
ES2403857-046	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<0.02 mg/L	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5596095)									
ES2403888-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2403888-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5593731)									
ES2403857-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<0.001 mg/L	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<0.005 mg/L	<5	0.0	No Limit
ES2403857-046	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<0.001 mg/L	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<0.002 mg/L	<2	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
				Laboratory Duplicate (DUP) Report					
EP080: BTEXN (QC Lot: 5593731) - continued									
ES2403857-046	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<0.005 mg/L	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 5596095)									
ES2403888-002	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
ES2403888-008	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

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*
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 5590163)								
EG005F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	106	82.0	114
EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	0.1 mg/L	106	81.0	113
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5598190)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	102	87.0	109
				<10	293 mg/L	117	75.2	126
				<10	2470 mg/L	103	83.0	124
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5598191)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	94.7	83.0	129
				<5	1000 mg/L	94.4	82.0	110
				<5	841 mg/L	106	83.0	118
EG020F: Dissolved Metals by ICP-MS (QCLot: 5590161)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.6	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.2	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.5	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.3	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	86.7	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5590159)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	93.7	83.0	105
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5594704)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	107	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5594699)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	93.3	69.0	101
				<0.1	1 mg/L	97.1	70.0	118
				<0.1	5 mg/L	105	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5594700)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	87.9	71.3	126
				<0.01	0.442 mg/L	89.7	71.3	126
				<0.01	1 mg/L	102	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5588825)								

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*
EP075(SIM)A: Phenolic Compounds (QCLot: 5588825) - continued								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	32.5	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	72.2	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	68.8	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	58.8	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	71.8	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	86.5	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	71.7	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	74.7	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	66.4	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	80.4	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	70.8	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	37.9	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5588825)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	68.8	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	70.7	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	72.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	76.6	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	86.1	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	81.4	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	98.4	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	99.0	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	100	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	98.6	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	94.5	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	85.9	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	96.1	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	96.5	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	96.5	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	94.8	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5588826)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	73.9	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	85.6	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	98.5	58.3	120

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*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5593731)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.0	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5596095)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	104	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5588826)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	64.5	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	78.6	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	74.1	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5593731)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	79.2	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5596095)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.4	75.0	127
EP080: BTEXN (QCLot: 5593731)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	113	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	95.6	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	96.5	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	100	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	99.8	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.2	75.5	124
EP080: BTEXN (QCLot: 5596095)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	116	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	111	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	88.8	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	113	75.5	124

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 (%)*	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 5590163)							
ES2403761-001	Anonymous	EG005F: Manganese	7439-96-5	1 mg/L	108	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5590161)							
ES2403761-003	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	102	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	122	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	81.1	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	113	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	# Not Determined	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5590159)							
ES2403595-003	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	92.0	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5594704)							
ES2403912-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5594699)							
ES2403860-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	50 mg/L	105	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5594700)							
ES2403868-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5593731)							
ES2403857-007	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.9	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5596095)							
ES2403888-002	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	77.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5593731)							
ES2403857-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	90.1	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5596095)							
ES2403888-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	71.4	70.0	130
EP080: BTEXN (QCLot: 5593731)							
ES2403857-007	Anonymous	EP080: Benzene	71-43-2	25 µg/L	111	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	93.1	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	93.9	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	97.0	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.6	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.1	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*
EP080: BTEXN (QCLot: 5596095)							
ES2403888-002	Anonymous	EP080: Benzene	71-43-2	25 µg/L	85.5	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	78.3	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	78.2	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	77.9	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	72.8	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	77.8	70.0	130

Subcon / Forward Lab / Split WO
Lab / Analysis: Eurofins
Organised By / Date: QC203
Relinquished By / Date:
Connote / Courier:
WO No: ES2404239
Attached By PO / Internal Sheet:

HT

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address:
Contact: Sample Receipt
Phone:

Job Number:	S20102	**Purchase Order:**	
Project Name:	Wetherill Park WME	**Quote No:**	EN/103/21
Sampled By:	Rowan Faint	**Turn Around Time:**	Standard 7 Days
Project Manager:	Emma Walsh	**Page:**	1 of 1
Email Report To:	rowan.faint@senversa.com.au Bec.Chapple@senversa.com.au;	**Phone/Mobile:**	0408038593, 0404011544

Environmental Division
Sydney
Work Order Reference
ES2404239
Telephone : + 61-2-8784 8555

Sample Information					Container Information		Analysis Required										
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	W-18 (TRH/BTEXN)	W-26 (TRH/BTEX/PAH/8 METALS)			NT-8	TP and TN		EG005F (FE AND MN)			Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
1	QC404	W	9/02/2024		VOA	1	X										
2	QC504	W	9/02/2024		VOA	1	X										
3	QC303	W	9/02/2024		P, VS x2, N, UA, VSA	6		X				X					
4	MW1	W	9/02/2024		P, VS x2, N, UA, VSA	6		X			X			X			
5	MW2	W	9/02/2024		P, VS x2, N, UA, VSA	6		X			X			X			
6	MW3	W	9/02/2024		P, VS x2, N, UA, VSA	6		X			X			X			
7	MW6	W	9/02/2024		P, VS x2, N, UA, VSA	6		X			X			X			
8	QC103	W	9/02/2024		P, VS x2, N, UA, VSA	6		X				X		X			
	QC203	W	9/02/2024		P, VS x2, N, UA, VSA	6		X				X					Please forward to Eurofins
Total						44											

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:** Rowan Faint	**Signature:** RFaint	**Date:** 9/02/2024		

Relinquished By:		**Method of Shipment (if applicable):**	**Received by:**	
Name/Signature: Rowan Faint	Date: 9/2/24	Carrier / Reference #:	Name/Signature: Wcas/ [illegible]	Date: 9/2/24
Of:	Time: 3:30 PM	Date/Time:	Of: ALS	Time: 1630
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V= VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: ________
Checked by: ________

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2404239**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Sandy Phan
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Emma.Walsh@senversa.com.au	E-mail	: sandy.phan@alsglobal.com
Telephone	: 02 8252 0000	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: S20102 Wetherill Park WME	Page	: 1 of 3
Order number	: ----	Quote number	: EB2023SENVER0001 (EN/000)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Rowan Faint		

Dates

Date Samples Received	: 09-Feb-2024 16:30	Issue Date	: 10-Feb-2024
Client Requested Due Date	: 15-Feb-2024	Scheduled Reporting Date	: **15-Feb-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 12.0'C, 13.6'C, 9.7'C - Ice present
Receipt Detail	: Large Esky	No. of samples received / analysed	: 8 / 8

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
- **Sample QC203 to be forwarded to Eurofins for analysis.**
- **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 direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

ES2404239-002 : [05-Feb-2024] : QC504 - Trip Spike 13

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 - EG005F Dissolved Metals by ICPAES	WATER - EP080 BTEXN	WATER - NT-08 Total Nitrogen + NO2 + NO3 + NH3 + Total P	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES2404239-001	05-Feb-2024 00:00	QC404 Trip Blank					✓	
ES2404239-002	05-Feb-2024 00:00	QC504 Trip Spike 13		✓				
ES2404239-003	09-Feb-2024 00:00	QC303				✓		✓
ES2404239-004	09-Feb-2024 00:00	MW1	✓		✓			✓
ES2404239-005	09-Feb-2024 00:00	MW2	✓		✓			✓
ES2404239-006	09-Feb-2024 00:00	MW3	✓		✓			✓
ES2404239-007	09-Feb-2024 00:00	MW6	✓		✓			✓
ES2404239-008	09-Feb-2024 00:00	QC103	✓			✓		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

BEC CHAPPLE		
- *AU Certificate of Analysis - NATA (COA)	Email	bec.chapple@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bec.chapple@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bec.chapple@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bec.chapple@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	bec.chapple@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	bec.chapple@senversa.com.au
EMMA WALSH		
- *AU Certificate of Analysis - NATA (COA)	Email	Emma.Walsh@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Emma.Walsh@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	Emma.Walsh@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Emma.Walsh@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Emma.Walsh@senversa.com.au
Rowan Faint		
- *AU Certificate of Analysis - NATA (COA)	Email	rowan.faint@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	rowan.faint@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	rowan.faint@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	rowan.faint@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	rowan.faint@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	rowan.faint@senversa.com.au
SUPPLIER ACCOUNTS		
- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

CERTIFICATE OF ANALYSIS

Work Order : **ES2404239**
Client : **SENVERSA PTY LTD**
Contact : EMMA WALSH
Address : Level 24, 1 Market St, Sydney NSW 2000
SYDNEY NSW 2000
Telephone : 02 8252 0000
Project : S20102 Wetherill Park WME
Order number : ----
C-O-C number : ----
Sampler : Rowan Faint
Site : ----
Quote number : EN/000
No. of samples received : 8
No. of samples analysed : 8

Page : 1 of 10
Laboratory : Environmental Division Sydney
Contact : Sandy Phan
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 09-Feb-2024 16:30
Date Analysis Commenced : 10-Feb-2024
Issue Date : 15-Feb-2024 18:29

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene 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.
- EG020: LORs have been raised for some samples due to matrix interference (High sample salinity)
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**QC404** **Trip Blank**	**QC504** **Trip Spike 13**	**QC303**	**MW1**	**MW2**
			Sampling date / time	05-Feb-2024 00:00	05-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2404239-001**	**ES2404239-002**	**ES2404239-003**	**ES2404239-004**	**ES2404239-005**
				Result	Result	Result	Result	Result
EG005(ED093)F: Dissolved Metals by ICP-AES								
Iron	7439-89-6	0.05	mg/L	----	----	----	**3.96**	**0.54**
Manganese	7439-96-5	0.01	mg/L	----	----	----	**0.59**	**1.76**
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	**0.012**	**0.004**
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	**0.015**	**0.006**
Zinc	7440-66-6	0.005	mg/L	----	----	<0.005	**0.016**	**0.009**
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	----	**0.48**	**0.44**
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	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	<0.1	**0.6**	**0.8**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	----	----	<0.1	**0.6**	**0.8**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	----	**0.02**	<0.01	**0.05**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

			Sample ID	**QC404 Trip Blank**	**QC504 Trip Spike 13**	**QC303**	**MW1**	**MW2**
			Sampling date / time	05-Feb-2024 00:00	05-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00
Compound	CAS Number	LOR	Unit	**ES2404239-001**	**ES2404239-002**	**ES2404239-003**	**ES2404239-004**	**ES2404239-005**
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Naphthalene	91-20-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	----	----	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	----	----	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	----	----	<50	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	----	----	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	<20	<20	<20

Analytical Results

	Compound	CAS Number	LOR	Unit	QC404 Trip Blank	QC504 Trip Spike 13	QC303	MW1	MW2
	Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC404 Trip Blank	QC504 Trip Spike 13	QC303	MW1	MW2
				Sampling date / time	05-Feb-2024 00:00	05-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00
					ES2404239-001	ES2404239-002	ES2404239-003	ES2404239-004	ES2404239-005
					Result	Result	Result	Result	Result
	EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^	**C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	----	<20	<20	<20
	>C10 - C16 Fraction	----	100	µg/L	----	----	<100	<100	<100
	>C16 - C34 Fraction	----	100	µg/L	----	----	<100	<100	<100
	>C34 - C40 Fraction	----	100	µg/L	----	----	<100	<100	<100
^	**>C10 - C40 Fraction (sum)**	----	100	µg/L	----	----	<100	<100	<100
^	**>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	----	----	<100	<100	<100
	EP080: BTEXN								
	Benzene	71-43-2	1	µg/L	<1	**15**	<1	<1	<1
	Toluene	108-88-3	2	µg/L	<2	**16**	<2	<2	<2
	Ethylbenzene	100-41-4	2	µg/L	<2	**16**	<2	<2	<2
	meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	**17**	<2	<2	<2
	ortho-Xylene	95-47-6	2	µg/L	<2	**17**	<2	<2	<2
^	**Total Xylenes**	----	2	µg/L	<2	**34**	<2	<2	<2
^	**Sum of BTEX**	----	1	µg/L	<1	**81**	<1	<1	<1
	Naphthalene	91-20-3	5	µg/L	<5	**18**	<5	<5	<5
	EP075(SIM)S: Phenolic Compound Surrogates								
	Phenol-d6	13127-88-3	1.0	%	----	----	**32.7**	**28.9**	**28.0**
	2-Chlorophenol-D4	93951-73-6	1.0	%	----	----	**63.8**	**61.2**	**56.1**
	2.4.6-Tribromophenol	118-79-6	1.0	%	----	----	**79.8**	**85.0**	**79.5**
	EP075(SIM)T: PAH Surrogates								
	2-Fluorobiphenyl	321-60-8	1.0	%	----	----	**70.6**	**67.4**	**67.7**
	Anthracene-d10	1719-06-8	1.0	%	----	----	**64.0**	**65.1**	**59.5**
	4-Terphenyl-d14	1718-51-0	1.0	%	----	----	**85.8**	**87.7**	**76.2**
	EP080S: TPH(V)/BTEX Surrogates								
	1.2-Dichloroethane-D4	17060-07-0	2	%	**78.3**	**89.0**	**90.2**	**90.0**	**87.5**
	Toluene-D8	2037-26-5	2	%	**86.6**	**96.6**	**95.2**	**97.5**	**96.8**

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**QC404** **Trip Blank**	**QC504** **Trip Spike 13**	**QC303**	**MW1**	**MW2**
			Sampling date / time	05-Feb-2024 00:00	05-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00
Compound	CAS Number	LOR	Unit	**ES2404239-001**	**ES2404239-002**	**ES2404239-003**	**ES2404239-004**	**ES2404239-005**
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	2	%	**112**	**125**	**126**	**127**	**125**

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW3**	**MW6**	**QC103**	----	----
			Sampling date / time	09-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2404239-006**	**ES2404239-007**	**ES2404239-008**	--------	--------
				Result	Result	Result	----	----
EG005(ED093)F: Dissolved Metals by ICP-AES								
Iron	7439-89-6	0.05	mg/L	**8.01**	<0.05	**8.08**	----	----
Manganese	7439-96-5	0.01	mg/L	**7.00**	**0.06**	**7.08**	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.010	**0.002**	<0.010	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0001	<0.0010	----	----
Chromium	7440-47-3	0.001	mg/L	<0.010	<0.001	<0.010	----	----
Copper	7440-50-8	0.001	mg/L	<0.010	<0.001	<0.010	----	----
Lead	7439-92-1	0.001	mg/L	<0.010	<0.001	<0.010	----	----
Nickel	7440-02-0	0.001	mg/L	**0.191**	**0.001**	**0.197**	----	----
Zinc	7440-66-6	0.005	mg/L	**0.247**	<0.005	**0.253**	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.29**	<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	**0.03**	**1.93**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.03**	**1.93**	**0.02**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.9**	**1.0**	**0.9**	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**0.9**	**2.9**	**0.9**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.08**	**0.03**	**0.09**	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW3**	**MW6**	**QC103**	**----**	**----**
			Sampling date / time	09-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2404239-006**	**ES2404239-007**	**ES2404239-008**	--------	--------
				Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**MW3**	**MW6**	**QC103**	----	----
			Sampling date / time	09-Feb-2024 00:00	09-Feb-2024 00:00	09-Feb-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	**ES2404239-006**	**ES2404239-007**	**ES2404239-008**	--------	--------
				Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	<100	<100	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	<100	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**29.1**	**25.9**	**24.8**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**58.1**	**60.0**	**50.4**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**75.2**	**90.8**	**65.4**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**65.2**	**73.3**	**57.3**	----	----
Anthracene-d10	1719-06-8	1.0	%	**76.4**	**65.3**	**64.2**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**74.0**	**84.9**	**66.0**	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**80.2**	**89.0**	**90.8**	----	----
Toluene-D8	2037-26-5	2	%	**89.2**	**102**	**94.3**	----	----
4-Bromofluorobenzene	460-00-4	2	%	**114**	**127**	**127**	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2404239**	Page	: 1 of 8
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Telephone	: +61-2-8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 09-Feb-2024
Site	: ----	Issue Date	: 15-Feb-2024
Sampler	: Rowan Faint	No. of samples received	: 8
Order number	: ----	No. of samples analysed	: 8

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **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							
EK055G: Ammonia as N by Discrete Analyser	ES2403164--001	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

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	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	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: **WATER**

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

Method		***Sample Date***	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)			***Date extracted***	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EG005(ED093)F: Dissolved Metals by ICP-AES								
Clear Plastic Bottle - Nitric Acid; Filtered (EG005F)								
MW1, MW3, QC103	MW2, MW6,	**09-Feb-2024**	**----**	----	----	**13-Feb-2024**	07-Aug-2024	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
QC303, MW2, MW6,	MW1, MW3, QC103	**09-Feb-2024**	**----**	----	----	**12-Feb-2024**	07-Aug-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*
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**----**	----	----	**13-Feb-2024**	08-Mar-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) MW1, MW2, MW3, MW6	**09-Feb-2024**	**----**	----	----	**14-Feb-2024**	08-Mar-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) MW1, MW2, MW3, MW6	**09-Feb-2024**	**----**	----	----	**10-Feb-2024**	11-Feb-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**----**	----	----	**14-Feb-2024**	08-Mar-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**14-Feb-2024**	08-Mar-2024	✓	**14-Feb-2024**	08-Mar-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**14-Feb-2024**	08-Mar-2024	✓	**14-Feb-2024**	08-Mar-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**12-Feb-2024**	16-Feb-2024	✓	**15-Feb-2024**	23-Mar-2024	✓

Matrix: **WATER**

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

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
***Container** / Client Sample ID(s)*		***Date extracted***	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**12-Feb-2024**	16-Feb-2024	✓	**14-Feb-2024**	23-Mar-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC404 - Trip Blank	**05-Feb-2024**	**13-Feb-2024**	19-Feb-2024	✓	**13-Feb-2024**	19-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**13-Feb-2024**	23-Feb-2024	✓	**13-Feb-2024**	23-Feb-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**12-Feb-2024**	16-Feb-2024	✓	**14-Feb-2024**	23-Mar-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC404 - Trip Blank	**05-Feb-2024**	**13-Feb-2024**	19-Feb-2024	✓	**13-Feb-2024**	19-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**13-Feb-2024**	23-Feb-2024	✓	**13-Feb-2024**	23-Feb-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC404 - Trip Blank, QC504 - Trip Spike 13	**05-Feb-2024**	**13-Feb-2024**	19-Feb-2024	✓	**13-Feb-2024**	19-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC303, MW1, MW2, MW3, MW6, QC103	**09-Feb-2024**	**13-Feb-2024**	23-Feb-2024	✓	**13-Feb-2024**	23-Feb-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: **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)							
Ammonia as N by Discrete analyser	EK055G	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-AES	EG005F	1	5	**20.00**	**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
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**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 Phosphorus as P By Discrete Analyser	EK067G	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	**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)							
Ammonia as N by Discrete analyser	EK055G	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-AES	EG005F	1	5	**20.00**	**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	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	6	37	**16.22**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**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)							
Ammonia as N by Discrete analyser	EK055G	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-AES	EG005F	1	5	**20.00**	**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	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**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 Phosphorus as P By Discrete Analyser	EK067G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**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)							

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							
Ammonia as N by Discrete analyser	EK055G	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-AES	EG005F	1	5	**20.00**	**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	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**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 Phosphorus as P By Discrete Analyser	EK067G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	**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*
Dissolved Metals by ICP-AES	EG005F	WATER	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. The ICPAES technique ionises the 0.45µm filtered samples, emitting a characteristic spectrum which is compared against matrix matched standards. 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).
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)
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*
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)

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)
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.

QUALITY CONTROL REPORT

Work Order	: **ES2404239**	Page	: 1 of 8
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Sandy Phan
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 8252 0000	Telephone	: +61-2-8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 09-Feb-2024
Order number	: ----	Date Analysis Commenced	: 10-Feb-2024
C-O-C number	: ----	Issue Date	: 15-Feb-2024
Sampler	: Rowan Faint		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 8		
No. of samples analysed	: 8		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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 (%)*
EG005(ED093)F: Dissolved Metals by ICP-AES (QC Lot: 5595964)									
ES2404239-004	MW1	EG005F: Manganese	7439-96-5	0.01 (0.10)*	mg/L	0.59	0.60	2.5	No Limit
		EG005F: Iron	7439-89-6	0.05 (0.10)*	mg/L	3.96	4.09	3.4	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5595960)									
ES2404140-001	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: 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	0.022	0.021	7.0	No Limit
ES2403778-007	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	<0.001	<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: 5595963)									
ES2403998-007	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2404239-003	QC303	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: 5599208)									
ES2403164-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01 (1.00)*	mg/L	947	992	4.7	0% - 20%
ES2404239-004	MW1	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.48	0.47	0.0	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5594300)									
ES2404227-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2404102-002	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: 5599209)									
ES2404030-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.01	<0.01	0.0	No Limit
ES2404239-004	MW1	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5599213)									
ES2404024-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.5)*	mg/L	37.1	38.0	2.5	0% - 20%
ES2404239-004	MW1	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: 5599212)									
ES2404157-007	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	1.07	1.04	2.6	0% - 20%
ES2404024-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.05)*	mg/L	6.01	5.89	2.1	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5599214)									
ES2404239-004	MW1	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	0.02	74.2	No Limit
ES2404300-007	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5596119)									
ES2403922-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2404239-004	MW1	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5596119)									
ES2403922-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2404239-004	MW1	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5596119)									
ES2403922-001	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
ES2404239-004	MW1	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: 5596119) - continued									
ES2404239-004	MW1	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
				Result		LCS	Low	High
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 5595964)								
EG005F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	109	82.0	114
EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	0.1 mg/L	104	81.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5595960)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	108	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	107	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	106	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.6	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	110	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5595963)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	89.9	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5599208)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	97.0	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5594300)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	96.5	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5599209)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5599213)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1 <0.1 <0.1	10 mg/L 1 mg/L 5 mg/L	89.7 97.3 106	69.0 70.0 70.0	101 118 130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5599212)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01 <0.01 <0.01	4.42 mg/L 0.442 mg/L 1 mg/L	92.7 96.4 113	71.3 71.3 70.0	126 126 130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5599214)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01 <0.01 <0.01	4.42 mg/L 0.442 mg/L 1 mg/L	87.9 94.0 112	71.3 71.3 70.0	126 126 130

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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5594837)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	67.2	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	81.5	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	66.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	78.4	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	74.8	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	73.2	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	79.8	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	82.5	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	76.2	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	77.6	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	83.1	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	68.3	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	75.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	75.7	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	75.7	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	70.8	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5594836)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	63.5	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	79.4	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	79.8	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5596119)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	103	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5594836)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	61.0	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	77.3	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	78.8	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5596119)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.5	75.0	127
EP080: BTEXN (QCLot: 5596119)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	101	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	111	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	107	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	115	73.0	122

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*
EP080: BTEXN (QCLot: 5596119) - continued								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.2	75.5	124

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 (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 5595964)							
ES2404239-005	MW2	EG005F: Manganese	7439-96-5	1 mg/L	100	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5595960)							
ES2404001-001	Anonymous	EG020A-F: Arsenic	7440-38-2	2 mg/L	87.8	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.5 mg/L	86.0	70.0	130
		EG020A-F: Chromium	7440-47-3	2 mg/L	89.0	70.0	130
		EG020A-F: Copper	7440-50-8	2 mg/L	81.5	70.0	130
		EG020A-F: Lead	7439-92-1	2 mg/L	87.5	70.0	130
		EG020A-F: Nickel	7440-02-0	2 mg/L	87.7	70.0	130
		EG020A-F: Zinc	7440-66-6	2 mg/L	83.6	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5595963)							
ES2403888-013	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	88.7	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5599208)							
ES2403164-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	# Not Determined	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5594300)							
ES2404102-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	101	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5599209)							
ES2404030-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	99.7	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5599213)							
ES2404030-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	105	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5599212)							
ES2404030-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	115	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5599214)							
ES2404300-008	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	115	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
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5596119)							
ES2403922-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	83.5	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5596119)							
ES2403922-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	79.0	70.0	130
EP080: BTEXN (QCLot: 5596119)							
ES2403922-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	94.1	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	96.3	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	99.4	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	106	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	98.2	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	91.6	70.0	130

senversa
Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Chain of Custody Documentation

Laboratory: ALS NSW
Address:
Contact: Sample Receipt
Phone:

Job Number: S20102
Project Name: Wetherill Park WME
Sampled By: Rowan Faint
Project Manager: Emma Walsh
Email Report To: rowan.faint@senversa.com.au Bec.Chapple@senversa.com.au;
Purchase Order:
Quote No: EN/103/21
Turn Around Time: Standard 7 Days
Page: 1 of 1
Phone/Mobile: 0408038593, 0404011544

Sample Information					Container Information		Analysis Required											
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	W-18 (TRH/BTEXN)	W-26 (TRH/BTEX/PAH/8 METALS)			NT-8	TP and TN		EG005F (FE AND MN)			HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
1	MW4	W	14/02/2024		P, VS x2, N, UA, VSA	6		X			X			X				HT
Total						6												

Environmental Division
Sydney
Work Order Reference
ES2404752
Telephone : + 61-2-8784 8555

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:
Sampler Name: Rowan Faint
Signature: RFaint
Date: 14/02/2024

Relinquished By:			Method of Shipment (if applicable):	Received by:		
Name/Signature:	Rowan Faint	Date: 14/2/24	Carrier / Reference #:	Name/Signature:	Woas [illegible]	Date: 14/2/24
Of:		Time: 3:15 PM	Date/Time:	Of:	ALS	Time: 1546
Name/Signature:		Date:	Carrier / Reference #:	Name/Signature:		Date:
Of:		Time:	Date/Time:	Of:		Time:
Name/Signature:		Date:	Carrier / Reference #:	Name/Signature:		Date:
Of:		Time:	Date/Time:	Of:		Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: ________
Checked by: ________

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2404752**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Rowan Faint	Contact	: Sandy Phan
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: rowan.faint@senversa.com.au	E-mail	: sandy.phan@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: S20102 Wetherill Park WME	Page	: 1 of 2
Order number	: ----	Quote number	: EB2023SENVER0001 (EN/000)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Rowan Faint		

Dates

Date Samples Received	: 14-Feb-2024 15:46	Issue Date	: 14-Feb-2024
Client Requested Due Date	: 20-Feb-2024	Scheduled Reporting Date	: **20-Feb-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 14.0, 12.1, 11.0'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

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 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 direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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 - EG005F Dissolved Metals by ICPAES	WATER - NT-08 Total Nitrogen + NO2 + NO3 + NH3 + Total P	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES2404752-001	14-Feb-2024 00:00	MW4	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

BEC CHAPPLE		
- *AU Certificate of Analysis - NATA (COA)	Email	bec.chapple@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bec.chapple@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bec.chapple@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bec.chapple@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	bec.chapple@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	bec.chapple@senversa.com.au
Rowan Faint		
- *AU Certificate of Analysis - NATA (COA)	Email	rowan.faint@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	rowan.faint@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	rowan.faint@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	rowan.faint@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	rowan.faint@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	rowan.faint@senversa.com.au
SUPPLIER ACCOUNTS		
- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

CERTIFICATE OF ANALYSIS

Work Order : **ES2404752**
Client : **SENVERSA PTY LTD**
Contact : Rowan Faint
Address : Level 24, 1 Market St, Sydney NSW 2000
SYDNEY NSW 2000
Telephone : ----
Project : S20102 Wetherill Park WME
Order number : ----
C-O-C number : ----
Sampler : Rowan Faint
Site : ----
Quote number : EN/000
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 6
Laboratory : Environmental Division Sydney
Contact : Sandy Phan
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 14-Feb-2024 15:46
Date Analysis Commenced : 14-Feb-2024
Issue Date : 20-Feb-2024 12:37

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene 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.
- EP080: The result for sample ES2404752-001 was confirmed by re-analysis.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW4**	----	----	----	----
			Sampling date / time	14-Feb-2024 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2404752-001**	--------	--------	--------	--------
				Result	----	----	----	----
EG005(ED093)F: Dissolved Metals by ICP-AES								
Iron	7439-89-6	0.05	mg/L	**2.04**	----	----	----	----
Manganese	7439-96-5	0.01	mg/L	**5.03**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.008**	----	----	----	----
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**	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.017**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.006**	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.30**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	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	**1.2**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**1.2**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.07**	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW4**	----	----	----	----
			Sampling date / time	14-Feb-2024 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2404752-001**	--------	--------	--------	--------
				Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW4**	----	----	----	----
			Sampling date / time	14-Feb-2024 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2404752-001**	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>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	**2**	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**24.0**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**51.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**43.7**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**67.3**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%	**72.2**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**71.5**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**88.3**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**97.6**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**106**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	*CAS Number*	*Recovery Limits (%)* Low	*Recovery Limits (%)* High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2404752**	Page	: 1 of 7
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Rowan Faint	Telephone	: +61-2-8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 14-Feb-2024
Site	: ----	Issue Date	: 20-Feb-2024
Sampler	: Rowan Faint	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **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							
EG005(ED093)F: Dissolved Metals by ICP-AES	ES2404752--001	MW4	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

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)						
Dissolved Mercury by FIMS	EG035F	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Dissolved Metals by ICP-MS - Suite A	EG020A-F	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	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: **WATER**

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

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
***Container** / Client Sample ID(s)*		***Date extracted***	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EG005(ED093)F: Dissolved Metals by ICP-AES							
Clear Plastic Bottle - Nitric Acid; Filtered (EG005F) MW4	**14-Feb-2024**	**----**	----	----	**16-Feb-2024**	12-Aug-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) MW4	**14-Feb-2024**	**----**	----	----	**16-Feb-2024**	12-Aug-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) MW4	**14-Feb-2024**	**----**	----	----	**19-Feb-2024**	13-Mar-2024	✓

Matrix: **WATER**

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

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
***Container** / Client Sample ID(s)*		***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) MW4	**14-Feb-2024**	**----**	----	----	**19-Feb-2024**	13-Mar-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) MW4	**14-Feb-2024**	**----**	----	----	**14-Feb-2024**	16-Feb-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) MW4	**14-Feb-2024**	**----**	----	----	**19-Feb-2024**	13-Mar-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) MW4	**14-Feb-2024**	**16-Feb-2024**	13-Mar-2024	✓	**16-Feb-2024**	13-Mar-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) MW4	**14-Feb-2024**	**16-Feb-2024**	13-Mar-2024	✓	**16-Feb-2024**	13-Mar-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW4	**14-Feb-2024**	**15-Feb-2024**	21-Feb-2024	✓	**17-Feb-2024**	26-Mar-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) MW4	**14-Feb-2024**	**15-Feb-2024**	21-Feb-2024	✓	**17-Feb-2024**	26-Mar-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW4	**14-Feb-2024**	**15-Feb-2024**	28-Feb-2024	✓	**15-Feb-2024**	28-Feb-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) MW4	**14-Feb-2024**	**15-Feb-2024**	21-Feb-2024	✓	**17-Feb-2024**	26-Mar-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW4	**14-Feb-2024**	**15-Feb-2024**	28-Feb-2024	✓	**15-Feb-2024**	28-Feb-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) MW4	**14-Feb-2024**	**15-Feb-2024**	28-Feb-2024	✓	**15-Feb-2024**	28-Feb-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: **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)							
Ammonia as N by Discrete analyser	EK055G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	0	1	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	14	**14.29**	**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
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	14	**14.29**	**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
TRH - Semivolatile Fraction	EP071	0	3	**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)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**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-AES	EG005F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	14	**7.14**	**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
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	14	**21.43**	**15.00**	✓	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
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**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)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**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-AES	EG005F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	14	**7.14**	**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
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	14	**7.14**	**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
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**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)							

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							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**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-AES	EG005F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	0	9	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	14	**7.14**	**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
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	14	**7.14**	**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
TRH - Semivolatile Fraction	EP071	0	3	**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*
Dissolved Metals by ICP-AES	EG005F	WATER	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. The ICPAES technique ionises the 0.45µm filtered samples, emitting a characteristic spectrum which is compared against matrix matched standards. 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).
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)
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*
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)

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)
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.

QUALITY CONTROL REPORT

Work Order : **ES2404752**

Client : **SENVERSA PTY LTD**
Contact : Rowan Faint
Address : Level 24, 1 Market St, Sydney NSW 2000
SYDNEY NSW 2000
Telephone : ----
Project : S20102 Wetherill Park WME
Order number : ----
C-O-C number : ----
Sampler : Rowan Faint
Site : ----
Quote number : EN/000
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 6

Laboratory : Environmental Division Sydney
Contact : Sandy Phan
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 14-Feb-2024
Date Analysis Commenced : 14-Feb-2024
Issue Date : 20-Feb-2024

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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 (%)*
EG005(ED093)F: Dissolved Metals by ICP-AES (QC Lot: 5604225)									
ES2404752-001	MW4	EG005F: Manganese	7439-96-5	0.01	mg/L	5.03	5.03	0.0	0% - 20%
		EG005F: Iron	7439-89-6	0.05	mg/L	2.04	2.06	0.6	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5604222)									
ES2404563-001	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	0.025	0.024	0.0	0% - 20%
		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	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5607396)									
ME2400277-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.64	0.64	0.0	0% - 20%
ES2404468-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.01	0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5601798)									
ES2404552-003	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: 5607397)									
ES2404549-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.03	0.03	0.0	No Limit
ES2404468-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5607394)									
ES2404424-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (2.0)*	mg/L	30.2	29.2	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 (%)*
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5607394) - continued									
ES2404549-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5607395)									
ES2404424-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.20)*	mg/L	3.04	3.21	5.2	0% - 50%
ES2404549-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.02	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5601542)									
ES2404452-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2404516-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5601542)									
ES2404452-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2404516-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5601542)									
ES2404452-001	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
ES2404516-001	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

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
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 5604225)								
EG005F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	110	82.0	114
EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	0.1 mg/L	106	81.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5604222)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.9	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.8	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.0	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.8	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5604224)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.8	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5607396)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	91.4	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5601798)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	95.4	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5607397)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	106	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5607394)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	100	69.0	101
				<0.1	1 mg/L	114	70.0	118
				<0.1	5 mg/L	103	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5607395)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	94.0	71.3	126
				<0.01	0.442 mg/L	99.4	71.3	126
				<0.01	1 mg/L	104	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5601397)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	72.2	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	76.1	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	91.3	62.2	113

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*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5601397) - continued								
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	74.4	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	74.8	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	78.2	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	80.7	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	78.1	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	77.2	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	72.6	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	73.0	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	75.8	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	72.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	80.3	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	71.9	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	75.9	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5601398)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	79.5	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	84.9	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	88.8	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5601542)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	81.5	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5601398)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	66.2	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	74.6	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	73.7	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5601542)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	75.7	75.0	127
EP080: BTEXN (QCLot: 5601542)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	91.4	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.4	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	99.9	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	105	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	99.3	75.5	124

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 (%)*	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 5604225)							
ES2404752-001	MW4	EG005F: Manganese	7439-96-5	1 mg/L	# Not Determined	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5604224)							
ES2404752-001	MW4	EG035F: Mercury	7439-97-6	0.01 mg/L	93.8	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5607396)							
ES2404468-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	85.7	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5601798)							
ES2404552-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	92.2	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5607397)							
ES2404468-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	99.8	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5607394)							
ES2404468-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	90.6	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5607395)							
ES2404468-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	90.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5601542)							
ES2404452-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	81.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5601542)							
ES2404452-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	76.0	70.0	130
EP080: BTEXN (QCLot: 5601542)							
ES2404452-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	99.7	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	98.6	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	98.9	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	99.0	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	94.7	70.0	130

senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address:
Contact: Sample Receipt
Phone:

Job Number:	S20102	**Purchase Order:**	
Project Name:	Wetherill Park WME	**Quote No:**	EN\103\21
Sampled By:	Rowan Faint	**Turn Around Time:**	Standard
Project Manager:	Emma Walsh	**Page:**	1 of 1
Email Report To:	rowan.faint@senversa.com.au emma.walsh@senversa.com.au bec.chapple@senversa.com.au	**Phone/Mobile:**	0420 218 472

Sample Information					**Container Information**		**Analysis Required**												
Lab ID	**Sample ID**	**Matrix ***	**Date**	**Time**	**Type / Code**	**Total Bottles**	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EA025H Suspended Solids - Standard Level	WATER - EG005F Dissolved Metals (Fe and Mn)	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - EP080 BTEXN				HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
	SW1	Water	9/07/2024	AM		6	X	X	X	X	X							
	SW2	Water	9/07/2024	AM		6	X	X	X	X	X							
	QC405	Water	9/07/2024	AM		1						X						
	QC505	Water	9/07/2024	AM		1							X					
Total						14												

Environmental Division
Sydney
Work Order Reference
ES2422553

Telephone : + 61-2-8784 8555

HT

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:**	Rowan Faint	**Signature:**	RFaint	**Date:** 9/07/2024

Relinquished By:			**Method of Shipment (if applicable):**	**Received by:**	
Name/Signature:	Rowan Faint	Date: 9/7/2024	Carrier / Reference #:	Name/Signature:	Date:
Of:	Senversa	Time: 12:30 PM	Date/Time:	Of:	Time:
Name/Signature:		Date:	Carrier / Reference #:	Name/Signature: 9/7/24 12:40p	Date:
Of:		Time:	Date/Time:	Of:	Time:
Name/Signature:		Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:		Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _________
Checked by: _________

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2422553**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Sandy Phan
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Emma.Walsh@senversa.com.au	E-mail	: sandy.phan@alsglobal.com
Telephone	: 02 8252 0000	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: S20102 Wetherill Park WME	Page	: 1 of 2
Order number	: ----	Quote number	: EB2023SENVER0001 (EN/000)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Rowan Faint		

Dates

Date Samples Received	: 09-Jul-2024 12:40	Issue Date	: 09-Jul-2024
Client Requested Due Date	: 16-Jul-2024	Scheduled Reporting Date	: **16-Jul-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.6'C 4.4'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

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 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.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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 - EA015H Total Dissolved Solids - Standard Level	WATER - EA025H Suspended Solids - Standard Level	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EP080 BTEXN	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES2422553-001	09-Jul-2024 00:00	SW1	✓	✓	✓		✓		✓
ES2422553-002	09-Jul-2024 00:00	SW2	✓	✓	✓		✓		✓
ES2422553-003	09-Jul-2024 00:00	QC405						✓	
ES2422553-004	09-Jul-2024 00:00	QC505				✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

EMMA WALSH		
- *AU Certificate of Analysis - NATA (COA)	Email	Emma.Walsh@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Emma.Walsh@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	Emma.Walsh@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Emma.Walsh@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Emma.Walsh@senversa.com.au
SUPPLIER ACCOUNTS		
- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

CERTIFICATE OF ANALYSIS

Work Order : **ES2422553**
Client : **SENVERSA PTY LTD**
Contact : EMMA WALSH
Address : Level 24, 1 Market St, Sydney NSW 2000
SYDNEY NSW 2000
Telephone : 02 8252 0000
Project : S20102 Wetherill Park WME
Order number : ----
C-O-C number : ----
Sampler : Rowan Faint
Site : ----
Quote number : EN/000
No. of samples received : 4
No. of samples analysed : 4

Page : 1 of 7
Laboratory : Environmental Division Sydney
Contact : Sandy Phan
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 09-Jul-2024 12:40
Date Analysis Commenced : 10-Jul-2024
Issue Date : 16-Jul-2024 13:48

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene 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.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**SW1**	**SW2**	**QC405**	**QC505**	----
			Sampling date / time	09-Jul-2024 00:00	09-Jul-2024 00:00	09-Jul-2024 00:00	09-Jul-2024 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2422553-001**	**ES2422553-002**	**ES2422553-003**	**ES2422553-004**	--------
				Result	Result	Result	Result	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**228**	**282**	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**7260**	**90**	----	----	----
EG020F: Dissolved Metals by ICP-MS								
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	**0.003**	**0.004**	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Manganese	7439-96-5	0.001	mg/L	**0.045**	**0.015**	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	**0.023**	----	----	----
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	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.32**	**0.51**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**22.6**	**3.8**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**22.9**	**4.3**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**6.68**	**0.63**	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**SW1**	**SW2**	**QC405**	**QC505**	**----**
			Sampling date / time	09-Jul-2024 00:00	09-Jul-2024 00:00	09-Jul-2024 00:00	09-Jul-2024 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2422553-001**	**ES2422553-002**	**ES2422553-003**	**ES2422553-004**	**--------**
				Result	Result	Result	Result	----
EP075(SIM)A: Phenolic Compounds - Continued								
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**SW1**	**SW2**	**QC405**	**QC505**	----
			Sampling date / time	09-Jul-2024 00:00	09-Jul-2024 00:00	09-Jul-2024 00:00	09-Jul-2024 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2422553-001**	**ES2422553-002**	**ES2422553-003**	**ES2422553-004**	--------
				Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	**290**	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	**130**	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	**420**	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	**380**	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	**380**	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	**14**	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	**15**	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	**16**	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	**16**	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	**14**	----
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	**30**	----
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	**75**	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	**21**	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**27.9**	**19.6**	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**SW1**	**SW2**	**QC405**	**QC505**	**----**
			Sampling date / time	09-Jul-2024 00:00	09-Jul-2024 00:00	09-Jul-2024 00:00	09-Jul-2024 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2422553-001**	**ES2422553-002**	**ES2422553-003**	**ES2422553-004**	**--------**
				Result	Result	Result	Result	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2-Chlorophenol-D4	93951-73-6	1.0	%	**55.9**	**41.2**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	1.0	%	**65.8**	**41.5**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**57.5**	**51.0**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	1.0	%	**59.7**	**58.5**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	1.0	%	**70.5**	**60.3**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**113**	**114**	**82.2**	**90.8**	**----**
Toluene-D8	2037-26-5	2	%	**115**	**114**	**90.9**	**103**	**----**
4-Bromofluorobenzene	460-00-4	2	%	**109**	**106**	**106**	**106**	**----**

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2422553**	Page	: 1 of 7
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Telephone	: +61-2-8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 09-Jul-2024
Site	: ----	Issue Date	: 16-Jul-2024
Sampler	: Rowan Faint	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4

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

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

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	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	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: **WATER**

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

Method	*Sample Date*	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)		*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) SW1, SW2	**09-Jul-2024**	**----**	----	----	**11-Jul-2024**	16-Jul-2024	✓
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H) SW1, SW2	**09-Jul-2024**	**----**	----	----	**11-Jul-2024**	16-Jul-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SW1, SW2	**09-Jul-2024**	**----**	----	----	**10-Jul-2024**	05-Jan-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SW1, SW2	**09-Jul-2024**	**----**	----	----	**12-Jul-2024**	06-Aug-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) SW1, SW2	**09-Jul-2024**	**----**	----	----	**11-Jul-2024**	06-Aug-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) SW1, SW2	**09-Jul-2024**	**11-Jul-2024**	06-Aug-2024	✓	**11-Jul-2024**	06-Aug-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) SW1, SW2	**09-Jul-2024**	**11-Jul-2024**	06-Aug-2024	✓	**11-Jul-2024**	06-Aug-2024	✓

Matrix: **WATER**

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

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
***Container** / Client Sample ID(s)*		***Date extracted***	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) SW1, SW2	**09-Jul-2024**	**10-Jul-2024**	16-Jul-2024	✓	**11-Jul-2024**	19-Aug-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) SW1, SW2	**09-Jul-2024**	**10-Jul-2024**	16-Jul-2024	✓	**11-Jul-2024**	19-Aug-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) SW1, SW2	**09-Jul-2024**	**10-Jul-2024**	16-Jul-2024	✓	**11-Jul-2024**	19-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC405	**09-Jul-2024**	**11-Jul-2024**	23-Jul-2024	✓	**11-Jul-2024**	23-Jul-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SW1, SW2	**09-Jul-2024**	**11-Jul-2024**	23-Jul-2024	✓	**12-Jul-2024**	23-Jul-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) SW1, SW2	**09-Jul-2024**	**10-Jul-2024**	16-Jul-2024	✓	**11-Jul-2024**	19-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC405	**09-Jul-2024**	**11-Jul-2024**	23-Jul-2024	✓	**11-Jul-2024**	23-Jul-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SW1, SW2	**09-Jul-2024**	**11-Jul-2024**	23-Jul-2024	✓	**12-Jul-2024**	23-Jul-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC405, QC505	**09-Jul-2024**	**11-Jul-2024**	23-Jul-2024	✓	**11-Jul-2024**	23-Jul-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SW1, SW2	**09-Jul-2024**	**11-Jul-2024**	23-Jul-2024	✓	**12-Jul-2024**	23-Jul-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: **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)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	39	**12.82**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	7	**42.86**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	11	**27.27**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	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*	
Matrix Spikes (MS) - Continued							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	**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*
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)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . 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).
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)
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)
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)

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)

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)
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.

QUALITY CONTROL REPORT

Work Order : **ES2422553**

Page : 1 of 9

Client : **SENVERSA PTY LTD**
Contact : EMMA WALSH
Address : Level 24, 1 Market St, Sydney NSW 2000
SYDNEY NSW 2000
Telephone : 02 8252 0000
Project : S20102 Wetherill Park WME
Order number : ----
C-O-C number : ----
Sampler : Rowan Faint
Site : ----
Quote number : EN/000
No. of samples received : 4
No. of samples analysed : 4

Laboratory : Environmental Division Sydney
Contact : Sandy Phan
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 09-Jul-2024
Date Analysis Commenced : 10-Jul-2024
Issue Date : 16-Jul-2024

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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 (%)*
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5918870)									
EN2406536-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	444	454	2.3	0% - 20%
EN2406634-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	810	810	0.0	0% - 20%
ES2422089-005	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	32200	32300	0.2	0% - 20%
ES2422511-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	16	32	68.8	No Limit
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 5918869)									
EN2406536-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	8	8	0.0	No Limit
EN2406634-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	11	12	13.0	No Limit
ES2422089-005	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
ES2422511-004	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	18	25	30.2	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5914847)									
ES2422557-001	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	0.005	0.005	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: Manganese	7439-96-5	0.001	mg/L	0.048	0.048	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.062	0.062	0.0	0% - 50%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5914848)									

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 (%)*
EG035F: Dissolved Mercury by FIMS (QC Lot: 5914848) - continued									
ES2422557-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5918576)									
ES2422915-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.55	0.62	11.7	0% - 20%
ES2422660-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5918574)									
ES2422553-001	SW1	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (2.0)*	mg/L	22.6	25.4	11.9	0% - 50%
ES2422915-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.5)*	mg/L	19.6	19.9	1.3	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5918575)									
ES2422553-001	SW1	EK067G: Total Phosphorus as P	----	0.01 (0.20)*	mg/L	6.68	6.55	2.0	0% - 20%
ES2422915-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.05)*	mg/L	0.17	0.18	7.5	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5915799)									
EN2406506-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2422255-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5915806)									
ES2422453-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2422604-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5915799)									
EN2406506-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2422255-001	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: 5915806)									
ES2422453-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2422604-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5915799)									
EN2406506-001	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
ES2422255-001	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

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: 5915806)									
ES2422453-001	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
ES2422604-001	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

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
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5918870)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	101	87.0	109
				<10	293 mg/L	108	75.2	126
				<10	2410 mg/L	109	83.0	124
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5918869)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	96.0	83.0	129
				<5	1000 mg/L	98.6	82.0	110
				<5	928 mg/L	96.9	83.0	118
EG020F: Dissolved Metals by ICP-MS (QCLot: 5914847)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.5	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.0	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.3	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.3	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.4	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	91.4	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.1	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	91.5	82.0	112
EG035F: Dissolved Mercury by FIMS (QCLot: 5914848)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.6	83.0	105
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5918576)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5918574)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	95.3	69.0	123
				<0.1	1 mg/L	99.7	70.0	123
				<0.1	5 mg/L	100	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5918575)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	99.0	71.3	126
				<0.01	0.442 mg/L	92.1	71.3	126
				<0.01	1 mg/L	102	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5912236)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	38.1	24.5	61.9

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
EP075(SIM)A: Phenolic Compounds (QCLot: 5912236) - continued								
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	73.8	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	67.0	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	58.7	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	73.1	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	67.5	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	71.7	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	76.0	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	75.2	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	67.4	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	79.4	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	38.5	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5912236)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	68.0	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	69.8	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	70.5	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	70.6	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	85.4	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	85.0	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	84.4	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	84.9	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	78.0	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	81.0	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	83.5	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	75.8	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	81.6	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	76.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	80.0	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	78.2	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5912235)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	59.4	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	65.1	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	92.2	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5915799)								

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
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5915799) - continued								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.8	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5915806)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5912235)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	58.1	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	61.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	86.6	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5915799)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	78.1	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5915806)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.0	75.0	127
EP080: BTEXN (QCLot: 5915799)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	91.5	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	96.9	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	92.5	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	90.9	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	87.8	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.8	75.5	124
EP080: BTEXN (QCLot: 5915806)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.8	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	107	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	99.6	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.0	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	100	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	102	75.5	124

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 (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High

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: 5914847)							
ES2422553-002	SW2	EG020A-F: Arsenic	7440-38-2	1 mg/L	97.3	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	98.2	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	95.2	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	96.2	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	91.9	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	98.0	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	95.2	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	103	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5914848)							
ES2422553-001	SW1	EG035F: Mercury	7439-97-6	0.01 mg/L	88.0	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5918576)							
ES2422660-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	114	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5918574)							
ES2422553-002	SW2	EK061G: Total Kjeldahl Nitrogen as N	----	50 mg/L	88.9	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5918575)							
ES2422553-002	SW2	EK067G: Total Phosphorus as P	----	10 mg/L	102	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5915799)							
EN2406506-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	73.9	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5915806)							
ES2422604-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	77.2	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5915799)							
EN2406506-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	75.9	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5915806)							
ES2422604-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	76.3	70.0	130
EP080: BTEXN (QCLot: 5915799)							
EN2406506-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.3	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	99.6	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	106	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	104	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	103	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	109	70.0	130
EP080: BTEXN (QCLot: 5915806)							
ES2422604-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	92.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	87.1	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*
EP080: BTEXN (QCLot: 5915806) - continued							
ES2422604-001	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	85.9	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	89.1	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	104	70.0	130

senversa

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Chain of Custody Documentation

Laboratory: ALS NSW
Address:
Contact: Sample Receipt
Phone:

Job Number:	S20102	**Purchase Order:**	
Project Name:	Wetherill Park WME	**Quote No:**	EN\103\21
Sampled By:	Rowan Faint	**Turn Around Time:**	Standard
Project Manager:	Emma Walsh	**Page:**	1 of 1
Email Report To:	rowan.faint@senversa.com.au emma.walsh@senversa.com.au bec.chapple@senversa.com.au	**Phone/Mobile:**	0420 218 472

Sample Information					Container Information	
Lab ID	**Sample ID**	**Matrix***	**Date**	**Time**	**Type / Code**	**Total Bottles**
1	MW1	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6
2	MW2	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6
3	MW3	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6
4	MW4	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6
5	MW6	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6
6	QC104	Water	11/07/2024		2xVSA, 1xN, 1xUA, 1xSP	5
—	QC204	Water	11/07/2024		2xVSA, 1xN, 1xUA, 1xSP	5
7	QC304	Water	11/07/2024		2xVSA, 1xN, 1xUA, 1xSP	5
8	QC405	Water	11/07/2024		VSA	1
9	QC505	Water	11/07/2024		VSA	1
Total						47

Analysis Required											
Sample ID			WATER - EG005F Dissolved Metals (Fe and Mn)	NT-8	WATER - W-26 TRH/BTEXN/PAH/8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - EP080 BTEXN	TP and TN			HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
MW1			X	X	X							
MW2			X	X	X							
MW3			X	X	X							
MW4			X	X	X							
MW6			X	X	X							
QC104			X		X			X				
QC204			X		X			X				Please forward to Eurofins
QC304			X		X			X				
QC405						X						
QC505							X					

Environmental Division
Sydney
Work Order Reference
ES2423038
Telephone : +61-2-8784 8555

HT

Subcon / Forward Lab / Split WO
Lab / Analysis: QC204 / EUROFINS
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No: ES2423038
Attached By PO / Internal Sheet:

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:		**Sampler Name:**	Rowan Faint	**Signature:**	RFaint	**Date:**	11/07/2024

Relinquished By:				**Method of Shipment (if applicable):**	**Received by:**			
Name/Signature:	Rowan Faint	Date:		Carrier / Reference #:	Name/Signature:	Thanh Le	Date:	11/7/24
Of:	Senversa	Time:		Date/Time:	Of:	ALS	Time:	1715
Name/Signature:		Date:		Carrier / Reference #:	Name/Signature:		Date:	
Of:		Time:		Date/Time:	Of:		Time:	
Name/Signature:		Date:		Carrier / Reference #:	Name/Signature:		Date:	
Of:		Time:		Date/Time:	Of:		Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's Iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: ________
Checked by: ________

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2423038**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Sandy Phan
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: Emma.Walsh@senversa.com.au	E-mail	: sandy.phan@alsglobal.com
Telephone	: 02 8252 0000	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: S20102 Wetherill Park WME	Page	: 1 of 3
Order number	: ----	Quote number	: EB2023SENVER0001 (EN/000)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Rowan Faint		

Dates

Date Samples Received	: 12-Jul-2024 17:15	Issue Date	: 12-Jul-2024
Client Requested Due Date	: 22-Jul-2024	Scheduled Reporting Date	: **22-Jul-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 18.2'C, 15.3'C & 12.4'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 9 / 9

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
- The sampling date listed on the COC is 11/07/24, however the soil jar was dated 08/07/24 for sample 8 & 9.
- **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.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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 - EG005F Dissolved Metals by ICPAES	WATER - EP080 BTEXN	WATER - NT-08 Total Nitrogen + NO2 + NO3 + NH3 + Total P	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES2423038-001	11-Jul-2024 00:00	MW1	✓		✓			✓
ES2423038-002	11-Jul-2024 00:00	MW2	✓		✓			✓
ES2423038-003	11-Jul-2024 00:00	MW3	✓		✓			✓
ES2423038-004	11-Jul-2024 00:00	MW4	✓		✓			✓
ES2423038-005	11-Jul-2024 00:00	MW6	✓		✓			✓
ES2423038-006	11-Jul-2024 00:00	QC104	✓			✓		✓
ES2423038-007	11-Jul-2024 00:00	QC304	✓			✓		✓
ES2423038-008	08-Jul-2024 00:00	QC405					✓	
ES2423038-009	08-Jul-2024 00:00	QC505		✓				

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

BEC CHAPPLE		
- *AU Certificate of Analysis - NATA (COA)	Email	bec.chapple@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	bec.chapple@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	bec.chapple@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	bec.chapple@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	bec.chapple@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	bec.chapple@senversa.com.au
EMMA GUY		
- *AU Certificate of Analysis - NATA (COA)	Email	emma.guy@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	emma.guy@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	emma.guy@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	emma.guy@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	emma.guy@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	emma.guy@senversa.com.au
EMMA WALSH		
- *AU Certificate of Analysis - NATA (COA)	Email	Emma.Walsh@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Emma.Walsh@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Emma.Walsh@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	Emma.Walsh@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	Emma.Walsh@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	Emma.Walsh@senversa.com.au
SUPPLIER ACCOUNTS		
- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **ES2423038**	Page	: 1 of 9
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Contact	: Sandy Phan
Address	: Level 24, 1 Market St, Sydney NSW 2000 SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 8252 0000	Telephone	: +61-2-8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 12-Jul-2024 17:15
Order number	: ----	Date Analysis Commenced	: 13-Jul-2024
C-O-C number	: ----	Issue Date	: 22-Jul-2024 16:26
Sampler	: Rowan Faint		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 9		
No. of samples analysed	: 9		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene 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.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	MW1	MW2	MW3	MW4	MW6
			Sample ID	**MW1**	**MW2**	**MW3**	**MW4**	**MW6**
			Sampling date / time	11-Jul-2024 00:00	11-Jul-2024 00:00	11-Jul-2024 00:00	11-Jul-2024 00:00	11-Jul-2024 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2423038-001**	**ES2423038-002**	**ES2423038-003**	**ES2423038-004**	**ES2423038-005**
				Result	Result	Result	Result	Result
EG005(ED093)F: Dissolved Metals by ICP-AES								
Iron	7439-89-6	0.05	mg/L	**87.2**	**2.30**	**7.01**	**1.90**	<0.05
Manganese	7439-96-5	0.01	mg/L	**4.84**	**3.28**	**6.79**	**4.00**	<0.01
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.007**	**0.008**	**0.003**	**0.007**	<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	**0.003**	<0.001	**0.002**	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	**0.156**	**0.006**	**0.200**	**0.011**	<0.001
Zinc	7440-66-6	0.005	mg/L	**0.174**	<0.005	**0.243**	<0.005	<0.005
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	**0.19**	**0.26**	**0.28**	**0.28**	<0.01
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	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	**0.02**	**0.01**	<0.01	**1.64**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	**0.02**	**0.01**	<0.01	**1.64**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.1**	**0.6**	**0.6**	**0.4**	**0.3**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**1.1**	**0.6**	**0.6**	**0.4**	**1.9**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.04**	**0.05**	**0.04**	**0.04**	**0.05**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW1**	**MW2**	**MW3**	**MW4**	**MW6**
			Sampling date / time	11-Jul-2024 00:00	11-Jul-2024 00:00	11-Jul-2024 00:00	11-Jul-2024 00:00	11-Jul-2024 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2423038-001**	**ES2423038-002**	**ES2423038-003**	**ES2423038-004**	**ES2423038-005**
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	**250**	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	**170**	<100	**810**	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	**420**	<50	**810**	<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

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**MW1**	**MW2**	**MW3**	**MW4**	**MW6**
			Sampling date / time	11-Jul-2024 00:00	11-Jul-2024 00:00	11-Jul-2024 00:00	11-Jul-2024 00:00	11-Jul-2024 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2423038-001**	**ES2423038-002**	**ES2423038-003**	**ES2423038-004**	**ES2423038-005**
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>C10 - C16 Fraction	----	100	µg/L	**260**	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	**260**	<100	**400**	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	**520**	<100	**400**	<100	<100
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	**260**	<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
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**31.6**	**30.9**	**20.2**	**24.7**	**27.4**
2-Chlorophenol-D4	93951-73-6	1.0	%	**62.0**	**59.3**	**38.7**	**52.2**	**55.7**
2.4.6-Tribromophenol	118-79-6	1.0	%	**74.8**	**62.3**	**46.5**	**44.2**	**52.6**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**74.0**	**73.3**	**46.8**	**66.1**	**72.7**
Anthracene-d10	1719-06-8	1.0	%	**81.8**	**77.4**	**60.8**	**72.8**	**76.4**
4-Terphenyl-d14	1718-51-0	1.0	%	**85.2**	**84.8**	**58.0**	**78.3**	**82.7**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**96.6**	**98.2**	**104**	**100**	**99.9**
Toluene-D8	2037-26-5	2	%	**89.4**	**95.8**	**94.0**	**95.7**	**95.9**
4-Bromofluorobenzene	460-00-4	2	%	**109**	**113**	**115**	**113**	**116**

Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

			Sample ID	**QC104**	**QC304**	**QC405**	**QC505**	**----**
			Sampling date / time	11-Jul-2024 00:00	11-Jul-2024 00:00	08-Jul-2024 00:00	08-Jul-2024 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2423038-006**	**ES2423038-007**	**ES2423038-008**	**ES2423038-009**	**--------**
				Result	Result	Result	Result	----
EG005(ED093)F: Dissolved Metals by ICP-AES								
Iron	7439-89-6	0.05	mg/L	**6.96**	<0.05	----	----	----
Manganese	7439-96-5	0.01	mg/L	**6.80**	<0.01	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.003**	<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	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.200**	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.239**	<0.005	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.02**	**3.34**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.6**	**0.1**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**0.6**	**3.4**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.04**	<0.01	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			*Sample ID*	**QC104**	**QC304**	**QC405**	**QC505**	**----**
			Sampling date / time	11-Jul-2024 00:00	11-Jul-2024 00:00	08-Jul-2024 00:00	08-Jul-2024 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2423038-006**	**ES2423038-007**	**ES2423038-008**	**ES2423038-009**	**--------**
				Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	**800**	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	**800**	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	**480**	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	**480**	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	<100	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**QC104**	**QC304**	**QC405**	**QC505**	----
			Sampling date / time	11-Jul-2024 00:00	11-Jul-2024 00:00	08-Jul-2024 00:00	08-Jul-2024 00:00	----
Compound	CAS Number	LOR	Unit	**ES2423038-006**	**ES2423038-007**	**ES2423038-008**	**ES2423038-009**	--------
				Result	Result	Result	Result	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	**14**	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	**15**	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	**14**	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	**14**	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	**16**	----
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	**30**	----
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	**73**	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	**19**	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**33.2**	**30.2**	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**66.6**	**65.3**	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**77.0**	**66.1**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**73.7**	**70.9**	----	----	----
Anthracene-d10	1719-06-8	1.0	%	**90.4**	**90.0**	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**97.0**	**97.4**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**98.6**	**103**	**100**	**104**	----
Toluene-D8	2037-26-5	2	%	**91.8**	**97.1**	**90.7**	**85.5**	----
4-Bromofluorobenzene	460-00-4	2	%	**109**	**118**	**112**	**117**	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2423038**	Page	: 1 of 8
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: EMMA WALSH	Telephone	: +61-2-8784 8555
Project	: S20102 Wetherill Park WME	Date Samples Received	: 12-Jul-2024
Site	: ----	Issue Date	: 22-Jul-2024
Sampler	: Rowan Faint	No. of samples received	: 9
Order number	: ----	No. of samples analysed	: 9

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

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

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							
EG005(ED093)F: Dissolved Metals by ICP-AES	ES2423038--001	MW1	**Manganese**	7439-96-5	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	EN2406968--001	Anonymous	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

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	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	10	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: **WATER**

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

Method	*Sample Date*	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)		*Date extracted*	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EG005(ED093)F: Dissolved Metals by ICP-AES							
Clear Plastic Bottle - Nitric Acid; Filtered (EG005F) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**----**	----	----	**17-Jul-2024**	07-Jan-2025	✓

Matrix: **WATER**

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

Method ***Container*** / *Client Sample ID(s)*	***Sample Date***	*Extraction / Preparation* ***Date extracted***	 *Due for extraction*	 *Evaluation*	*Analysis* ***Date analysed***	 *Due for analysis*	 *Evaluation*
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**----**	----	----	**17-Jul-2024**	07-Jan-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**----**	----	----	**18-Jul-2024**	08-Aug-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) MW1, MW2, MW3, MW4, MW6	**11-Jul-2024**	**----**	----	----	**18-Jul-2024**	08-Aug-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) MW1, MW2, MW3, MW4, MW6	**11-Jul-2024**	**----**	----	----	**13-Jul-2024**	13-Jul-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**----**	----	----	**18-Jul-2024**	08-Aug-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**17-Jul-2024**	08-Aug-2024	✓	**18-Jul-2024**	08-Aug-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**17-Jul-2024**	08-Aug-2024	✓	**18-Jul-2024**	08-Aug-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)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW1, MW2, MW3	**11-Jul-2024**	**15-Jul-2024**	18-Jul-2024	✓	**17-Jul-2024**	24-Aug-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW4, MW6, QC104, QC304	**11-Jul-2024**	**15-Jul-2024**	18-Jul-2024	✓	**18-Jul-2024**	24-Aug-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**15-Jul-2024**	18-Jul-2024	✓	**18-Jul-2024**	24-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC405	**08-Jul-2024**	**15-Jul-2024**	22-Jul-2024	✓	**15-Jul-2024**	22-Jul-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**15-Jul-2024**	25-Jul-2024	✓	**15-Jul-2024**	25-Jul-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**15-Jul-2024**	18-Jul-2024	✓	**18-Jul-2024**	24-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC405	**08-Jul-2024**	**15-Jul-2024**	22-Jul-2024	✓	**15-Jul-2024**	22-Jul-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**15-Jul-2024**	25-Jul-2024	✓	**15-Jul-2024**	25-Jul-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC405, QC505	**08-Jul-2024**	**15-Jul-2024**	22-Jul-2024	✓	**15-Jul-2024**	22-Jul-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1, MW2, MW3, MW4, MW6, QC104, QC304	**11-Jul-2024**	**15-Jul-2024**	25-Jul-2024	✓	**15-Jul-2024**	25-Jul-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: **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)							
Ammonia as N by Discrete analyser	EK055G	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-AES	EG005F	2	7	**28.57**	**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
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	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	4	40	**10.00**	**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	0	10	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	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-AES	EG005F	1	7	**14.29**	**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	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	6	40	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	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-AES	EG005F	1	7	**14.29**	**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	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	40	**5.00**	**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	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							

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							
Ammonia as N by Discrete analyser	EK055G	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-AES	EG005F	1	7	**14.29**	**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	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	40	**5.00**	**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	0	10	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	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*
Dissolved Metals by ICP-AES	EG005F	WATER	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. The ICPAES technique ionises the 0.45µm filtered samples, emitting a characteristic spectrum which is compared against matrix matched standards. 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).
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)
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*
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)

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)
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.

QUALITY CONTROL REPORT

Work Order : **ES2423038**

Client : **SENVERSA PTY LTD**
Contact : EMMA WALSH
Address : Level 24, 1 Market St, Sydney NSW 2000
SYDNEY NSW 2000
Telephone : 02 8252 0000
Project : S20102 Wetherill Park WME
Order number : ----
C-O-C number : ----
Sampler : Rowan Faint
Site : ----
Quote number : EN/000
No. of samples received : 9
No. of samples analysed : 9

Page : 1 of 8

Laboratory : Environmental Division Sydney
Contact : Sandy Phan
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 12-Jul-2024
Date Analysis Commenced : 13-Jul-2024
Issue Date : 22-Jul-2024

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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 (%)*
EG005(ED093)F: Dissolved Metals by ICP-AES (QC Lot: 5927824)									
ES2423038-002	MW2	EG005F: Manganese	7439-96-5	0.01	mg/L	3.28	3.30	0.7	0% - 20%
		EG005F: Iron	7439-89-6	0.05	mg/L	2.30	2.27	1.6	0% - 20%
ES2423171-004	Anonymous	EG005F: Manganese	7439-96-5	0.01	mg/L	0.29	0.31	5.7	0% - 20%
		EG005F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5927822)									
ES2422571-003	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	<0.001	<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
ES2423171-007	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	0.006	0.006	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.010	0.010	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.006	0.007	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	0.009	0.009	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.352	0.348	1.0	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 5927821)									

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 (%)*
EG035F: Dissolved Mercury by FIMS (QC Lot: 5927821) - continued									
ES2422571-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2423038-006	QC104	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: 5931487)									
EN2406968-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.68	0.65	3.2	0% - 20%
ES2423149-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.03	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5922064)									
ES2422894-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2423027-007	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: 5931486)									
EN2406976-006	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	19.2	19.1	0.5	0% - 20%
EN2406968-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	4.30	4.20	2.3	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5931488)									
ES2423149-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.73	0.73	0.0	0% - 20%
ME2401138-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.34	0.36	5.2	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5931483)									
EN2406976-007	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.5)*	mg/L	0.8	0.9	12.1	No Limit
EN2406950-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (2.0)*	mg/L	101	110	8.2	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5931484)									
ES2423038-005	MW6	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.3	0.3	0.0	No Limit
ES2423536-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	50.4	49.4	1.9	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5931482)									
EN2406950-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.20)*	mg/L	0.81	1.13	32.5	No Limit
ES2423038-005	MW6	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.05	0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5924176)									
ES2423038-001	MW1	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2423038-008	QC405	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5924176)									
ES2423038-001	MW1	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2423038-008	QC405	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5924176)									
ES2423038-001	MW1	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: 5924176) - continued									
ES2423038-001	MW1	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2423038-008	QC405	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

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*
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 5927824)								
EG005F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	109	82.0	114
EG005F: Manganese	7439-96-5	0.01	mg/L	<0.01	0.1 mg/L	103	81.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5927822)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.3	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.1	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.9	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.7	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.3	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.8	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5927821)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	93.6	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5931487)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	95.4	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5922064)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	100	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5931486)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	108	91.0	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5931488)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	107	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5931483)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	88.7	69.0	123
				<0.1	1 mg/L	116	70.0	123
				<0.1	5 mg/L	112	70.0	123
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5931484)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	87.1	69.0	123
				<0.1	1 mg/L	112	70.0	123
				<0.1	5 mg/L	108	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5931482)								

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: 5931482) - continued								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01 <0.01 <0.01	4.42 mg/L 0.442 mg/L 1 mg/L	104 98.2 101	71.3 71.3 70.0	126 126 130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5923133)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	68.8	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	71.8	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	71.5	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	68.4	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	75.7	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	78.6	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	84.5	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	87.7	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	80.9	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	92.3	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	86.5	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	85.9	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	85.5	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	73.2	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	74.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	77.8	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5923134)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	85.8	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	83.2	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	97.1	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5924176)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.1	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5923134)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	73.3	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	82.1	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	105	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5924176)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	82.9	75.0	127
EP080: BTEXN (QCLot: 5924176)								

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
EP080: BTEXN (QCLot: 5924176) - continued								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.9	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	95.7	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	89.7	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	97.5	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.1	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	103	75.5	124

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 (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 5927824)							
ES2423038-001	MW1	EG005F: Manganese	7439-96-5	1 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5927822)							
ES2422571-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	96.6	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	98.8	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	95.1	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	96.7	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	92.5	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	97.7	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	99.2	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5927821)							
ES2422571-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	84.1	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5931487)							
EN2406968-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	113	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5922064)							
ES2422894-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	101	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5931486)							
EN2406968-001	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: 5931488)							

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: 5931488) - continued							
ME2401138-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	125	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5931483)							
EN2406950-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	100 mg/L	99.8	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5931484)							
ES2423536-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	50 mg/L	104	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5931482)							
EN2406950-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	97.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5924176)							
ES2423038-001	MW1	EP080: C6 - C9 Fraction	----	325 µg/L	108	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5924176)							
ES2423038-001	MW1	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	100	70.0	130
EP080: BTEXN (QCLot: 5924176)							
ES2423038-001	MW1	EP080: Benzene	71-43-2	25 µg/L	76.5	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	79.4	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	81.6	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	78.9	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	92.7	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	97.4	70.0	130

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address:
Contact: Sample Receipt
Phone:

Job Number:	S20102	**Purchase Order:**	
Project Name:	Wetherill Park WME	**Quote No:**	**EN/103/21**
Sampled By:	Bec Chapple	**Turn Around Time:**	**Standard 7 Days**
Project Manager:	Emma Walsh	**Page:**	1 of 1
Email Report To:	Bec.Chapple@senversa.com.au, Emma.Walsh@senversa.com.au	**Phone/Mobile:**	0408038593, 0404011544

Sample Information					**Container Information**		**Analysis Required**											**Comments:** e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
Lab ID	**Sample ID**	**Matrix ***	**Date**	**Time**	**Type / Code**	**Total Bottles**	W-18 (TRH/BTEXN)	W-26 (TRH/BTEX/PAH/8 METALS)	W-27 (TRH/BTEX/PAH/8 METALS/ PHENOLS)	NT-14 (CATIONS, ANIONS AND NUTRIENTS)	NT-11 (TN, TP)	EA015H (TDS)	EA025H (TSS)	EG005F (FE AND MN)			HOLD	
1	QC401	W	8/02/2023	AM	VOA	1	X											
2	QC501	W	8/02/2023	AM	VOA	1	X											
3	QC301	W	8/02/2023	AM	VS x2, N, UA, VSA	5		X			X			X				
4	MW1	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
5	MW2	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
6	MW3	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
7	MW4	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
8	MW6	W	8/02/2023	AM	P, VS x2, N, UA, VSA	6			X	X				X				
9	QC101	W	8/02/2023	AM	VS x2, N, UA, VSA	5		X			X			X				
x	① QC201	W	8/02/2023	AM	VS x2, N, UA, VSA	5												Please forward to Envirolab
Total						47												

Environmental Division
Sydney
Work Order Reference
ES2304011

Telephone : + 61-2-8784 8555

Subcon / [✓ Forward Lab] / Split WO
Lab / Analysis: # QC201 / ENVIROLAB
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No: ES2304011
Attached By PO / Internal Sheet:

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

ENVIROLAB

Job No: 316159
Date Received: 09/02/23
Time Received: 1600
Received By: CA
Temp: [✓ Cool]/Ambient
Cooling: [✓ Ice]/Icepack
Security: Intact/Broken/[✓ None]

HT

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples.	**Sampler Name:**	Bec Chapple	**Signature:**	**Date:**	8/02/2023

Relinquished By:		**Method of Shipment (if applicable):**	**Received by:**		
Name/Signature: Bec Chapple	Date: 8/2/23	Carrier / Reference #:	Name/Signature:	Date: 8/2/23	
Of:	Time: 12:00 PM	Date/Time:	Of:	Time: 12:29	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature: Christie CA	Date: 09/02/23	
Of:	Time:	Date/Time:	Of: ELS 546	Time: 1600	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:	
Of:	Time:	Date/Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO$_3$) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: ________
Checked by: ________

Simon Song

From: Emma Walsh <Emma.Walsh@senversa.com.au>
Sent: Wednesday, 15 February 2023 9:55 AM
To: Simon Song
Cc: Bec Chapple
Subject: RE: Sample Receipt for 316159 S20102, Wetherill Park WME

Hi Simon,

Sorry for the delay in getting back to you - can you pleased analyse sample QC201 for the following:

- TRH/BTEXN/PAH/8 metals (As, Cd, Cr, Cu, Hg, Ni and Zn)
- Total N, total P
- Additional metals – iron and manganese

Thanks.

Kind regards,

Emma Walsh
Senior Associate Environmental Scientist
M: +61 404 011 544
www.senversa.com.au
Level 24, 1 Market St,
Djubuguli, Eora Country
Sydney, NSW, 2000, Australia

From: Simon Song <SSong@envirolab.com.au>
Sent: Friday, 10 February 2023 1:16 PM
To: Bec Chapple <bec.chapple@senversa.com.au>; Emma Walsh <Emma.Walsh@senversa.com.au>
Subject: Sample Receipt for 316159 S20102, Wetherill Park WME

Please refer to attached for:
a copy of the COC/paperwork received from you
a copy of our Sample Receipt Advice (SRA)
Please open and read the SRA as it contains important information.
Please let the lab know immediately if there are any issues.

Results will be available by 6.30pm on the date indicated.

PLEASE NOTE COMBO PRICES WILL ONLY APPLY IF COMBOS ARE SELECTED ON COC.

We have a new reporting format and would welcome your feedback. Sydney@envirolab.com.au

Please note that subcontracted testing or non routine testing may take significantly longer than just the standard 5 day TAT, contact the lab to get an approximate due date.

Enquiries should be made directly to:
customerservice@envirolab.com.au

Regards

Envirolab Services
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200   fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	Senversa Pty Ltd
Attention	Bec Chapple, Emma Walsh

Sample Login Details	
Your reference	S20102, Wetherill Park WME
Envirolab Reference	316159
Date Sample Received	09/02/2023
Date Instructions Received	15/02/2023
Date Results Expected to be Reported	22/02/2023

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

last day of holding time for organics 15/2

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHsin Water	HM in water - dissolved	Total Nitrogen in water	Metals in Waters -Total
QC201	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200   fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 316159

Client Details

Client	Senversa Pty Ltd
Attention	Bec Chapple, Emma Walsh
Address	6/15 William St, Melbourne, VIC, 3000

Sample Details

Your Reference	**S20102, Wetherill Park WME**
Number of Samples	1 Water
Date samples received	09/02/2023
Date completed instructions received	15/02/2023

Analysis Details

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

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

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

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

Report Details

Date results requested by	22/02/2023
Date of Issue	22/02/2023

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

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

Results Approved By
Diego Bigolin, Inorganics Supervisor
Hannah Nguyen, Metals Supervisor
Josh Williams, Organics Supervisor
Kyle Gavrily, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		316159-1
Your Reference	UNITS	QC201
Date Sampled		8/02/2023
Type of sample		Water
Date extracted	-	21/02/2023
Date analysed	-	21/02/2023
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	113
Surrogate toluene-d8	%	103
Surrogate 4-BFB	%	104

svTRH (C10-C40) in Water		
Our Reference		316159-1
Your Reference	UNITS	QC201
Date Sampled		8/02/2023
Type of sample		Water
Date extracted	-	16/02/2023
Date analysed	-	16/02/2023
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	140
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	140
TRH >C_{10} - C_{16}	µg/L	130
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	130
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	130
Surrogate o-Terphenyl	%	67

PAHs in Water		
Our Reference		316159-1
Your Reference	UNITS	QC201
Date Sampled		8/02/2023
Type of sample		Water
Date extracted	-	16/02/2023
Date analysed	-	20/02/2023
Naphthalene	µg/L	<2
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,j+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	74

HM in water - dissolved		
Our Reference		316159-1
Your Reference	UNITS	QC201
Date Sampled		8/02/2023
Type of sample		Water
Date prepared	-	17/02/2023
Date analysed	-	20/02/2023
Arsenic-Dissolved	μg/L	4
Cadmium-Dissolved	μg/L	0.1
Chromium-Dissolved	μg/L	2
Copper-Dissolved	μg/L	<1
Lead-Dissolved	μg/L	1
Mercury-Dissolved	μg/L	<0.05
Nickel-Dissolved	μg/L	180
Zinc-Dissolved	μg/L	230
Iron-Dissolved	μg/L	5,700
Manganese-Dissolved	μg/L	5,800

Miscellaneous Inorganics		
Our Reference		316159-1
Your Reference	UNITS	QC201
Date Sampled		8/02/2023
Type of sample		Water
Date prepared	-	16/02/2023
Date analysed	-	16/02/2023
Total Nitrogen in water	mg/L	0.5

Metals in Waters - Total		
Our Reference		316159-1
Your Reference	UNITS	QC201
Date Sampled		8/02/2023
Type of sample		Water
Date prepared	-	20/02/2023
Date analysed	-	20/02/2023
Phosphorus - Total	mg/L	0.8

Method ID	Methodology Summary
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			21/02/2023	[NT]	[NT]	[NT]	[NT]	21/02/2023	[NT]
Date analysed	-			21/02/2023	[NT]	[NT]	[NT]	[NT]	21/02/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	95	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	95	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	93	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	110	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate toluene-d8	%		Org-023	104	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-BFB	%		Org-023	103	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			16/02/2023	[NT]	[NT]	[NT]	[NT]	16/02/2023	[NT]
Date analysed	-			16/02/2023	[NT]	[NT]	[NT]	[NT]	16/02/2023	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	75	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			16/02/2023	[NT]	[NT]	[NT]	[NT]	16/02/2023	[NT]
Date analysed	-			20/02/2023	[NT]	[NT]	[NT]	[NT]	20/02/2023	[NT]
Naphthalene	µg/L	2	Org-022/025	<2	[NT]	[NT]	[NT]	[NT]	72	[NT]
Acenaphthylene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	73	[NT]
Fluorene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Phenanthrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Anthracene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Benzo(a)anthracene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	69	[NT]
Benzo(b,j+k)fluoranthene	µg/L	2	Org-022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	77	[NT]	[NT]	[NT]	[NT]	77	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			17/02/2023	[NT]	[NT]	[NT]	[NT]	17/02/2023	[NT]
Date analysed	-			20/02/2023	[NT]	[NT]	[NT]	[NT]	20/02/2023	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	97	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	93	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			16/02/2023	[NT]	[NT]	[NT]	[NT]	16/02/2023	[NT]
Date analysed	-			16/02/2023	[NT]	[NT]	[NT]	[NT]	16/02/2023	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]

QUALITY CONTROL: Metals in Waters - Total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/02/2023	[NT]	[NT]	[NT]	[NT]	20/02/2023	[NT]
Date analysed	-			20/02/2023	[NT]	[NT]	[NT]	[NT]	20/02/2023	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	111	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

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

Report Comments

Total metals: no unfiltered, preserved sample was received, therefore analysis was conducted from the unpreserved amber sample bottle.
Note: there is a possibility some elements may be underestimated.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

DATA QUALITY ASSESSMENT SUMMARY

Report Details

Envirolab Report Reference	**316159**
Client ID	Senversa Pty Ltd
Project Reference	S20102, Wetherill Park WME
Date Issued	22/02/2023

QC DATA

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

HOLDING TIME COMPLIANCE EVALUATION

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

Holding Time Exceedances

Analysis	Sample No	Date Sampled	Date Extracted	Date Analysed	Accepted
svTRH (C10-C40) in Water					
	316159-1	8/02/2023	16/02/2023	16/02/2023	✗
PAHs in Water					
	316159-1	8/02/2023	16/02/2023	20/02/2023	✗

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

COMPLIANCE TO QC FREQUENCY (NEPM)

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

QC Evaluation

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

Refer to Certificate of Analysis for all Quality Control data.

senversa

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Chain of Custody Documentation

Laboratory: mgt/Eurofins VIC
Address:
Contact: Sample Receipt
Phone:

Job Number:	S20102	**Purchase Order:**	
Project Name:	Redirect	**Quote No:**	
Sampled By:	HY	**Turn Around Time:**	24 Hours
Project Manager:	Bec Chapple	**Page:**	1 of 1
Email Report To:	bec.chapple@senversa.com.au	**Phone/Mobile:**	0408 038 593

Sample Information					Container Information		Analysis Required											
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	TRH/BTEX/PAH/8 Heavy metals	Total Phosphorous and Total Nitrogen	Manganese and Iron								HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
	QC202	Water	14/08/2023				X	X	X									
Total																		

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:

Sampler Name: Hayley Yellowlees
Signature:
Date: 14/08/2023

Relinquished By:		**Method of Shipment (if applicable):**	**Received by:**	
Name/Signature: Bec Chapple	Date: 25/8/23	Carrier / Reference #:	Name/Signature:	Date: 25/8
Of:	Time:	Date/Time:	Of:	Time: 12:12
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: ________
Checked by: ________

9.1

Report # 1020195

Sample Receipt Advice

Company name:	Senversa Pty Ltd NSW
Contact name:	Bec Chapple
Project name:	REDIRECT
Project ID:	S20102
Turnaround time:	1 Day
Date/Time received	Aug 25, 2023 12:11 PM
Eurofins reference	1020195

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.
✗	Split sample sent to requested external lab.
✗	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:

Hannah Mawbey on phone : or by email: HannahMawbey@eurofins.com

Results will be delivered electronically via email to Bec Chapple - bec.chapple@senversa.com.au.

Note: A copy of these results will also be delivered to the general Senversa Pty Ltd NSW email address.

Global Leader - Results you can trust

Company Name: Senversa Pty Ltd NSW
Address: Level 24, 1 Market Street
SYDNEY
NSW 2000

Project Name: REDIRECT
Project ID: S20102

Order No.:
Report #: 1020195
Phone: 02 9994 8016
Fax: 03 9606 0074

Received: Aug 25, 2023 12:11 PM
Due: Aug 28, 2023
Priority: 1 Day
Contact Name: Bec Chapple

Eurofins Analytical Services Manager : Hannah Mawbey

Sample Detail						Iron	Manganese	Phosphate total (as P)	Total Nitrogen (as N)	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X		X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC202	Aug 14, 2023		Water	S23-Au0064866	X	X	X	X	X
Test Counts						1	1	1	1	1

eurofins

Environment Testing

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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.

Senversa Pty Ltd NSW
Level 24, 1 Market Street
SYDNEY
NSW 2000

Attention: **Bec Chapple**

Report **1020195-W**
Project name REDIRECT
Project ID S20102
Received Date Aug 25, 2023

Client Sample ID			**QC202**
Sample Matrix			**Water**
Eurofins Sample No.			**S23-Au0064866**
Date Sampled			**Aug 14, 2023**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
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	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)^{N01}	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
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
4-Bromofluorobenzene (surr.)	1	%	95
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene^{N02}	0.01	mg/L	< 0.01
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene^{N07}	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001

Client Sample ID			QC202
Sample Matrix			Water
Eurofins Sample No.			S23-Au0064866
Date Sampled			Aug 14, 2023
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	71
p-Terphenyl-d14 (surr.)	1	%	130
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02
Phosphate total (as P)	0.01	mg/L	0.03
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.5
Total Nitrogen (as N)*	0.2	mg/L	0.5
Heavy Metals			
Arsenic	0.001	mg/L	0.002
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.002
Copper	0.001	mg/L	0.002
Iron	0.05	mg/L	2.3
Lead	0.001	mg/L	0.002
Manganese	0.005	mg/L	5.9
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	0.18
Zinc	0.005	mg/L	0.086

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	Sydney	Aug 25, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Aug 25, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Aug 25, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Aug 25, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Aug 25, 2023	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Aug 28, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N)	Melbourne	Aug 31, 2023	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrate (as N)	Melbourne	Aug 31, 2023	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrite (as N)	Melbourne	Aug 31, 2023	2 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Total Kjeldahl Nitrogen (as N)	Melbourne	Aug 31, 2023	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Phosphate total (as P)	Sydney	Aug 25, 2023	28 Days
- Method: E052 Total Phosphate (as P)			
Heavy Metals	Sydney	Aug 28, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

Company Name: Senversa Pty Ltd NSW
Address: Level 24, 1 Market Street
SYDNEY
NSW 2000

Project Name: REDIRECT
Project ID: S20102

Order No.:
Report #: 1020195
Phone: 02 9994 8016
Fax: 03 9606 0074

Received: Aug 25, 2023 12:11 PM
Due: Aug 28, 2023
Priority: 1 Day
Contact Name: Bec Chapple

Eurofins Analytical Services Manager : Hannah Mawbey

Sample Detail						Iron	Manganese	Phosphate total (as P)	Total Nitrogen (as N)	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X		X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC202	Aug 14, 2023		Water	S23-Au0064866	X	X	X	X	X
Test Counts						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 follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram
ppm: parts per million
org/100 mL: Organisms per 100 millilitres
CFU: Colony forming unit
mg/L: milligrams per litre
ppb: parts per billion
NTU: Nephelometric Turbidity Units
µg/L: micrograms per litre
%: Percentage
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
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 a moisture has been determined on a solid sample the result is expressed on a dry 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 is representative of 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 like compound to the analyte target and reported as percentage recovery.
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 5.4
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 be used as a guide only 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%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. 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	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Iron	mg/L	< 0.05			0.05	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons							
TRH C6-C9	%	78			70-130	Pass	
TRH C10-C14	%	91			70-130	Pass	
TRH C6-C10	%	78			70-130	Pass	
TRH >C10-C16	%	89			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	95			70-130	Pass	
Toluene	%	86			70-130	Pass	
Ethylbenzene	%	85			70-130	Pass	
m&p-Xylenes	%	85			70-130	Pass	
o-Xylene	%	82			70-130	Pass	
Xylenes - Total*	%	84			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	95			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	99			70-130	Pass	
Acenaphthylene	%	98			70-130	Pass	
Anthracene	%	113			70-130	Pass	
Benz(a)anthracene	%	91			70-130	Pass	
Benzo(a)pyrene	%	111			70-130	Pass	
Benzo(b&j)fluoranthene	%	109			70-130	Pass	
Benzo(g.h.i)perylene	%	118			70-130	Pass	
Benzo(k)fluoranthene	%	128			70-130	Pass	
Chrysene	%	125			70-130	Pass	
Dibenz(a.h)anthracene	%	84			70-130	Pass	
Fluoranthene	%	114			70-130	Pass	
Fluorene	%	111			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	100			70-130	Pass	
Naphthalene	%	83			70-130	Pass	
Phenanthrene	%	95			70-130	Pass	
Pyrene	%	113			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	101			80-120	Pass	
Cadmium	%	101			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	101			80-120	Pass	
Iron	%	95			80-120	Pass	
Lead	%	106			80-120	Pass	
Manganese	%	100			80-120	Pass	
Mercury	%	109			80-120	Pass	
Nickel	%	101			80-120	Pass	
Zinc	%	101			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	S23-Au0058328	NCP	%	73			70-130	Pass	
TRH >C10-C16	S23-Au0058328	NCP	%	72			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S23-Au0054217	NCP	%	117			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	L23-Au0051993	NCP	%	99			75-125	Pass	
Chromium	L23-Au0051993	NCP	%	88			75-125	Pass	
Copper	S23-Au0054217	NCP	%	85			75-125	Pass	
Iron	L23-Au0051993	NCP	%	82			75-125	Pass	
Lead	L23-Au0051993	NCP	%	81			75-125	Pass	
Manganese	L23-Au0051993	NCP	%	91			75-125	Pass	
Mercury	S23-Au0054217	NCP	%	97			75-125	Pass	
Nickel	S23-Au0054217	NCP	%	89			75-125	Pass	
Zinc	S23-Au0054217	NCP	%	85			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	S23-Au0058331	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S23-Au0058327	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S23-Au0058327	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S23-Au0058327	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C6-C10	S23-Au0058331	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S23-Au0058327	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S23-Au0058327	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S23-Au0058327	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S23-Au0058331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S23-Au0058331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S23-Au0058331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S23-Au0058331	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S23-Au0058331	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S23-Au0058331	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S23-Au0058331	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S23-Au0066997	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S23-Au0066997	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S23-Au0066997	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S23-Au0066997	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Iron	S23-Au0066997	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead	S23-Au0066997	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese	S23-Au0066997	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury	S23-Au0066997	NCP	mg/L	0.0001	0.0001	4.8	30%	Pass	
Nickel	S23-Au0066997	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	S23-Au0066997	NCP	mg/L	< 0.005	< 0.005	<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.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Hannah Mawbey	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Mary Makarios	Senior Analyst-Inorganic
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile
Ryan Phillips	Senior Analyst-Inorganic

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

HT

Subcon / Forward Lab / Split WO
Lab / Analysis: Eurofins
Organised By / Date: QC203
Relinquished By / Date:
Connote / Courier:
WO No: ES2404239
Attached By PO / Internal Sheet:

Chain of Custody Documentation

senversa

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address:
Contact: Sample Receipt
Phone:

Job Number:	S20102	**Purchase Order:**	
Project Name:	Wetherill Park WME	**Quote No:**	EN/103/21
Sampled By:	Rowan Faint	**Turn Around Time:**	Standard 7 Days
Project Manager:	Emma Walsh	**Page:**	1 of 1
Email Report To:	rowan.faint@senversa.com.au Bec.Chapple@senversa.com.au;	**Phone/Mobile:**	0408038593, 0404011544

Sample Information					Container Information		Analysis Required											
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	W-18 (TRH/BTEXN)	W-26 (TRH/BTEX/PAH/8 METALS)			NT-8	TP and TN		EG005F (FE AND MN)				Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
1	QC404	W	9/02/2024		VOA	1	X											
2	QC504	W	9/02/2024		VOA	1	X											
3	QC303	W	9/02/2024		P, VS x2, N, UA, VSA	6		X				X						
4	MW1	W	9/02/2024		P, VS x2, N, UA, VSA	6		X			X			X				
5	MW2	W	9/02/2024		P, VS x2, N, UA, VSA	6		X			X			X				
6	MW3	W	9/02/2024		P, VS x2, N, UA, VSA	6		X			X			X				
7	MW6	W	9/02/2024		P, VS x2, N, UA, VSA	6		X			X			X				
8	QC103	W	9/02/2024		P, VS x2, N, UA, VSA	6		X				X		X				
	QC203	W	9/02/2024		P, VS x2, N, UA, VSA	6		X				X						Please forward to Eurofins
Total						44												

Environmental Division
Sydney
Work Order Reference
ES2404239

Telephone : + 61-2-8784 8555

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:**	Rowan Faint	**Signature:**	RFaint	**Date:** 9/02/2024

Relinquished By:		**Method of Shipment (if applicable):**	**Received by:**	
Name/Signature: Rowan Faint	Date: 9/2/24	Carrier / Reference #:	Name/Signature: Wcas /	Date: 9/2/24
Of:	Time: 3:30 PM	Date/Time:	Of: ALS	Time: 1630
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date: Sita
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date: 12/2 10:10am
Of:	Time:	Date/Time:	Of:	Time:

7.2°C

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydrochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by:
Checked by:

1067666

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd ABN: 50 005 085 521
Eurofins ARL Pty Ltd ABN: 91 05 0159 898
Eurofins Environment Testing NZ Ltd NZBN: 9429046024954

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle	Perth	Auckland	Auckland (Asb)	Christchurch	Tauranga
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive	46-48 Banksia Road	35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West	Welshpool	Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304	WA 6106	Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+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	+61 8 6253 4444	+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 2377	IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289	Site# 2370				

Sample Receipt Advice

Company name:	Senversa Pty Ltd NSW
Contact name:	Emma Walsh
Project name:	WETHERILL PARK WME
Project ID:	S20102
Turnaround time:	5 Day
Date/Time received	Feb 12, 2024 10:00 AM
Eurofins reference	1067666

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.

✗ Split sample sent to requested external lab.

✗ 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:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Emma Walsh - Emma.Walsh@senversa.com.au.

Note: A copy of these results will also be delivered to the general Senversa Pty Ltd NSW email address.

Global Leader - Results you can trust

Company Name: Senversa Pty Ltd NSW
Address: Level 24, 1 Market Street
SYDNEY
NSW 2000

Project Name: WETHERILL PARK WME
Project ID: S20102

Order No.:
Report #: 1067666
Phone: 02 9994 8016
Fax: 03 9606 0074

Received: Feb 12, 2024 10:00 AM
Due: Feb 19, 2024
Priority: 5 Day
Contact Name: Emma Walsh

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Eurofins Suite B7	Eurofins Suite B19A: Total N (TKN, NOx), Total P
Melbourne Laboratory - NATA # 1261 Site # 1254							X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC203	Feb 09, 2024		Water	S24-Fe0028297	X	X
Test Counts						1	1

eurofins | Environment Testing

Certificate of Analysis

Senversa Pty Ltd NSW
Level 24, 1 Market Street
SYDNEY
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

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:	**Emma Walsh**

Report	**1067666-W**
Project name	WETHERILL PARK WME
Project ID	S20102
Received Date	Feb 12, 2024

Client Sample ID			**QC203**
Sample Matrix			**Water**
Eurofins Sample No.			**S24-Fe0028297**
Date Sampled			**Feb 09, 2024**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
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	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)^{N01}	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
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
4-Bromofluorobenzene (surr.)	1	%	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene^{N02}	0.01	mg/L	< 0.01
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene^{N07}	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001

Client Sample ID			**QC203**
Sample Matrix			**Water**
Eurofins Sample No.			**S24-Fe0028297**
Date Sampled			**Feb 09, 2024**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	78
p-Terphenyl-d14 (surr.)	1	%	134
Nitrate & Nitrite (as N)	0.05	mg/L	0.11
Nitrate (as N)	0.02	mg/L	0.10
Nitrite (as N)	0.02	mg/L	< 0.02
Phosphate total (as P)	0.01	mg/L	0.05
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.3
Total Nitrogen (as N)*	0.2	mg/L	1.4
Heavy Metals			
Arsenic	0.001	mg/L	0.011
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.005
Copper	0.001	mg/L	0.006
Lead	0.001	mg/L	0.005
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	0.16
Zinc	0.005	mg/L	0.18

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	Sydney	Feb 17, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 17, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 17, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Feb 17, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Feb 17, 2024	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Feb 17, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N)	Melbourne	Feb 21, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate (as N)	Melbourne	Feb 21, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrite (as N)	Melbourne	Feb 21, 2024	2 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Total Kjeldahl Nitrogen (as N)	Melbourne	Feb 21, 2024	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Eurofins Suite B19A: Total N (TKN, NOx), Total P			
Phosphate total (as P)	Sydney	Feb 17, 2024	28 Days
- Method: E052 Total Phosphate (as P)			

Company Name: Senversa Pty Ltd NSW
Address: Level 24, 1 Market Street
SYDNEY
NSW 2000

Project Name: WETHERILL PARK WME
Project ID: S20102

Order No.:
Report #: 1067666
Phone: 02 9994 8016
Fax: 03 9606 0074

Received: Feb 12, 2024 10:00 AM
Due: Feb 19, 2024
Priority: 5 Day
Contact Name: Emma Walsh

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Eurofins Suite B7	Eurofins Suite B19A: Total N (TKN, NOx), Total P
Melbourne Laboratory - NATA # 1261 Site # 1254							X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC203	Feb 09, 2024		Water	S24-Fe0028297	X	X
Test Counts						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. All soil/sediment/solid results are reported on a dry weight basis unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
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.
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 date of sampling; 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 7 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
µg/L: micrograms per litre
org/100 mL: Organisms per 100 millilitres
CFU: Colony forming unit
mg/L: milligrams per litre
ppb: parts per billion
NTU: Nephelometric Turbidity Units
Colour: Pt-Co Units
ppm: parts per million
%: Percentage
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

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 5.4
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 70 – 130%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 5.4, 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	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	91			70-130	Pass	
TRH C10-C14	%	96			70-130	Pass	
TRH C6-C10	%	91			70-130	Pass	
TRH >C10-C16	%	92			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	116			70-130	Pass	
Toluene	%	111			70-130	Pass	
Ethylbenzene	%	109			70-130	Pass	
m&p-Xylenes	%	111			70-130	Pass	
o-Xylene	%	107			70-130	Pass	
Xylenes - Total*	%	109			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	91			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	100			70-130	Pass	
Acenaphthylene	%	96			70-130	Pass	
Anthracene	%	97			70-130	Pass	
Benz(a)anthracene	%	102			70-130	Pass	
Benzo(a)pyrene	%	117			70-130	Pass	
Benzo(b&j)fluoranthene	%	98			70-130	Pass	
Benzo(g.h.i)perylene	%	129			70-130	Pass	
Benzo(k)fluoranthene	%	120			70-130	Pass	
Chrysene	%	125			70-130	Pass	
Dibenz(a.h)anthracene	%	118			70-130	Pass	
Fluoranthene	%	116			70-130	Pass	
Fluorene	%	105			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	122			70-130	Pass	
Naphthalene	%	81			70-130	Pass	
Phenanthrene	%	98			70-130	Pass	
Pyrene	%	115			70-130	Pass	
LCS - % Recovery							
Nitrate & Nitrite (as N)	%	117			70-130	Pass	
Nitrite (as N)	%	104			70-130	Pass	
Phosphate total (as P)	%	113			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	107			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	101			80-120	Pass	
Cadmium	%	100			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	103			80-120	Pass	
Lead	%	102			80-120	Pass	
Mercury	%	101			80-120	Pass	
Nickel	%	102			80-120	Pass	
Zinc	%	101			80-120	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	S24-Fe0035298	NCP	%	84			70-130	Pass	
TRH C10-C14	S24-Fe0029342	NCP	%	88			70-130	Pass	
TRH C6-C10	S24-Fe0035298	NCP	%	82			70-130	Pass	
TRH >C10-C16	S24-Fe0029342	NCP	%	86			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S24-Fe0035298	NCP	%	115			70-130	Pass	
Toluene	S24-Fe0035298	NCP	%	93			70-130	Pass	
Ethylbenzene	S24-Fe0035298	NCP	%	101			70-130	Pass	
m&p-Xylenes	S24-Fe0035298	NCP	%	98			70-130	Pass	
o-Xylene	S24-Fe0035298	NCP	%	99			70-130	Pass	
Xylenes - Total*	S24-Fe0035298	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S24-Fe0035298	NCP	%	79			70-130	Pass	
Spike - % Recovery									
				Result 1					
Nitrate & Nitrite (as N)	L24-Fe0048715	NCP	%	112			70-130	Pass	
Nitrite (as N)	L24-Fe0048715	NCP	%	108			70-130	Pass	
Phosphate total (as P)	S24-Fe0030091	NCP	%	110			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M24-Fe0051544	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	R24-Fe0030398	NCP	%	102			75-125	Pass	
Cadmium	R24-Fe0030398	NCP	%	101			75-125	Pass	
Chromium	R24-Fe0030398	NCP	%	101			75-125	Pass	
Copper	R24-Fe0030398	NCP	%	102			75-125	Pass	
Lead	R24-Fe0030398	NCP	%	101			75-125	Pass	
Mercury	R24-Fe0030398	NCP	%	100			75-125	Pass	
Nickel	R24-Fe0030398	NCP	%	103			75-125	Pass	
Zinc	R24-Fe0030398	NCP	%	100			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	S24-Fe0026053	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S24-Fe0030079	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S24-Fe0030079	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S24-Fe0030079	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C6-C10	S24-Fe0026053	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S24-Fe0030079	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S24-Fe0030079	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S24-Fe0030079	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S24-Fe0026053	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S24-Fe0026053	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S24-Fe0026053	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S24-Fe0026053	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S24-Fe0026053	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S24-Fe0026053	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S24-Fe0026053	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Nitrate & Nitrite (as N)	M24-Fe0051355	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Nitrite (as N)	M24-Fe0051355	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Phosphate total (as P)	S24-Fe0043848	NCP	mg/L	0.04	0.04	2.3	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M24-Fe0049917	NCP	mg/L	150	110	28	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-Fe0030077	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S24-Fe0030077	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S24-Fe0030077	NCP	mg/L	0.003	0.003	8.0	30%	Pass	
Copper	S24-Fe0030077	NCP	mg/L	0.011	0.011	4.5	30%	Pass	
Lead	S24-Fe0030077	NCP	mg/L	0.004	0.004	2.9	30%	Pass	
Mercury	S24-Fe0030077	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S24-Fe0030077	NCP	mg/L	0.004	0.004	7.5	30%	Pass	
Zinc	S24-Fe0030077	NCP	mg/L	0.029	0.028	4.6	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.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Adam Bateup	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Maria Tian	Senior Analyst-Organic
Mary Makarios	Senior Analyst-Inorganic
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile
Ryan Phillips	Senior Analyst-Inorganic

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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

1117968

senversa

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Chain of Custody Documentation

Laboratory: ALS NSW
Address:
Contact: Sample Receipt
Phone:

Job Number:	S20102	**Purchase Order:**	
Project Name:	Wetherill Park WME	**Quote No:**	EN\103\21
Sampled By:	Rowan Faint	**Turn Around Time:**	Standard
Project Manager:	Emma Walsh	**Page:**	1 of 1
Email Report To:	rowan.faint@senversa.com.au emma.walsh@senversa.com.au bec.chapple@senversa.com.au	**Phone/Mobile:**	0420 218 472

Sample Information					Container Information		Analysis Required											
Lab ID	**Sample ID**	**Matrix**	**Date**	**Time**	**Type / Code**	**Total Bottles**			WATER - EG005F Dissolved Metals (Fe and Mn)	NT-8	WATER - W-26 TRH/BTEXN/PAH/8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - EP080 BTEXN	TP and TN			HOLD	**Comments**: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
1	MW1	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6			X	X	X							
2	MW2	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6			X	X	X							
3	MW3	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6			X	X	X							
4	MW4	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6			X	X	X							
5	MW6	Water	11/07/2024		1xP, 2xVSA, 1xN, 1xUA, 1xSP	6			X	X	X							
6	QC104	Water	11/07/2024		2xVSA, 1xN, 1xUA, 1xSP	5			X		X			X				
—	QC204	Water	11/07/2024		2xVSA, 1xN, 1xUA, 1xSP	5			X		X			X				Please forward to Eurofins
7	QC304	Water	11/07/2024		2xVSA, 1xN, 1xUA, 1xSP	5			X		X			X				
8	QC405	Water	11/07/2024		VSA	1						X						
9	QC505	Water	11/07/2024		VSA	1							X					
Total						47												

QC204
Eurof.

HT

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:** Rowan Faint	**Signature:** RFaint	**Date:** 11/07/2024

Relinquished By:				**Method of Shipment (if applicable):**	**Received by:**			
Name/Signature:	Rowan Faint	Date:		Carrier / Reference #:	Name/Signature:	Thanh Le	Date:	11/7/24
Of:	Senversa	Time:		Date/Time:	Of:	ALS	Time:	1715
Name/Signature:		Date:		Carrier / Reference #:	Name/Signature:	Brendon	Date:	15/7/24
Of:		Time:		Date/Time:	Of:		Time:	~~[illegible]~~
Name/Signature:		Date:		Carrier / Reference #:	Name/Signature:		Date:	
Of:		Time:		Date/Time:	Of:		Time:	

15/7
12:30

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

4.4

Completed by:

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd						Eurofins ARL Pty Ltd	Eurofins ProMicro Pty Ltd	Eurofins Environment Testing NZ Ltd			
ABN: 50 005 085 521						ABN: 91 05 0159 898	ABN: 47 009 120 549	NZBN: 9429046024954			
Melbourne	**Geelong**	**Sydney**	**Canberra**	**Brisbane**	**Newcastle**	**Perth**	**Perth ProMicro**	**Auckland**	**Auckland (Focus)**	**Christchurch**	**Tauranga**
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive	46-48 Banksia Road	46-48 Banksia Road	35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West	Welshpool	Welshpool	Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304	WA 6106	WA 6106	Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+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	+61 8 6253 4444	+61 8 6253 4444	+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 2377	NATA# 2561	IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079	Site# 2370	Site# 2554				

Sample Receipt Advice

Company name: Senversa Pty Ltd NSW
Contact name: Emma Walsh
Project name: WETHERILL PARK WME
Project ID: S20102
Turnaround time: 5 Day
Date/Time received Jul 15, 2024 2:30 PM
Eurofins reference 1117968

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.

✗ Split sample sent to requested external lab.

✗ 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:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Emma Walsh - Emma.Walsh@senversa.com.au.

Note: A copy of these results will also be delivered to the general Senversa Pty Ltd NSW email address.

Global Leader - Results you can trust

Company Name: Senversa Pty Ltd NSW
Address: Level 24, 1 Market Street
SYDNEY
NSW 2000

Project Name: WETHERILL PARK WME
Project ID: S20102

Order No.:
Report #: 1117968
Phone: 02 9994 8016
Fax: 03 9606 0074

Received: Jul 15, 2024 2:30 PM
Due: Jul 22, 2024
Priority: 5 Day
Contact Name: Emma Walsh

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Iron (filtered)	Manganese (filtered)	Total Recoverable Hydrocarbons	Eurofins Suite B7 (filtered metals)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	QC204	Jul 11, 2024		Water	S24-Jl0037338	X	X	X	X
Test Counts						1	1	1	1

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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.

Senversa Pty Ltd NSW
Level 24, 1 Market Street
SYDNEY
NSW 2000

Attention: **Emma Walsh**

Report	**1117968-W**
Project name	WETHERILL PARK WME
Project ID	S20102
Received Date	Jul 15, 2024

Client Sample ID			**QC204**
Sample Matrix			**Water**
Eurofins Sample No.			**S24-Jl0037338**
Date Sampled			**Jul 11, 2024**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	0.09
TRH C15-C28	0.1	mg/L	0.4
TRH C29-C36	0.1	mg/L	0.3
TRH C10-C36 (Total)	0.1	mg/L	0.79
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*	0.05	mg/L	0.11
TRH >C10-C16 less Naphthalene (F2)*^{N01}	0.05	mg/L	0.11
TRH >C16-C34*	0.1	mg/L	0.6
TRH >C34-C40	0.1	mg/L	0.2
TRH >C10-C40 (total)*	0.1	mg/L	0.91
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
4-Bromofluorobenzene (surr.)	1	%	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene^{N02}	0.01	mg/L	< 0.01
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene^{N07}	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001

Client Sample ID			**QC204**
Sample Matrix			**Water**
Eurofins Sample No.			**S24-Jl0037338**
Date Sampled			**Jul 11, 2024**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	78
p-Terphenyl-d14 (surr.)	1	%	109
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02
Phosphate total (as P)	0.01	mg/L	0.03
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.0
Total Nitrogen (as N)*	0.2	mg/L	1.0
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.01
Cadmium (filtered)	0.0002	mg/L	< 0.002
Chromium (filtered)	0.001	mg/L	< 0.01
Copper (filtered)	0.001	mg/L	< 0.01
Iron (filtered)	0.05	mg/L	7.4
Lead (filtered)	0.001	mg/L	< 0.01
Manganese (filtered)	0.005	mg/L	7.4
Mercury (filtered)	0.0001	mg/L	< 0.001
Nickel (filtered)	0.001	mg/L	0.20
Zinc (filtered)	0.005	mg/L	0.25

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	Sydney	Jul 17, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 17, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 17, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Jul 17, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Jul 17, 2024	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Sydney	Jul 17, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N)	Melbourne	Jul 17, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate (as N)	Melbourne	Jul 17, 2024	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrite (as N)	Melbourne	Jul 17, 2024	2 Days
- Method: LTM-INO-4450 Nitrogens by Discrete Analyser			
Total Kjeldahl Nitrogen (as N)	Melbourne	Jul 17, 2024	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Phosphate total (as P)	Sydney	Jul 17, 2024	28 Days
- Method: E052 Total Phosphate (as P)			
Heavy Metals (filtered)	Sydney	Jul 17, 2024	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

Company Name: Senversa Pty Ltd NSW
Address: Level 24, 1 Market Street
SYDNEY
NSW 2000

Project Name: WETHERILL PARK WME
Project ID: S20102

Order No.:
Report #: 1117968
Phone: 02 9994 8016
Fax: 03 9606 0074

Received: Jul 15, 2024 2:30 PM
Due: Jul 22, 2024
Priority: 5 Day
Contact Name: Emma Walsh

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Iron (filtered)	Manganese (filtered)	Total Recoverable Hydrocarbons	Eurofins Suite B7 (filtered metals)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	QC204	Jul 11, 2024		Water	S24-Jl0037338	X	X	X	X
Test Counts						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
µg/L: micrograms per litre
org/100 mL: Organisms per 100 millilitres
CFU: Colony Forming Unit
mg/L: milligrams per litre
ppb: parts per billion
NTU: Nephelometric Turbidity Units
Colour: Pt-Co Units (CU)
ppm: parts per million
%: Percentage
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

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	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10*	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16*	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34*	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Iron (filtered)	mg/L	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	104			70-130	Pass	
TRH C10-C14	%	77			70-130	Pass	
TRH C6-C10*	%	105			70-130	Pass	
TRH >C10-C16*	%	75			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	100			70-130	Pass	
Toluene	%	111			70-130	Pass	
Ethylbenzene	%	109			70-130	Pass	
m&p-Xylenes	%	113			70-130	Pass	
o-Xylene	%	109			70-130	Pass	
Xylenes - Total*	%	112			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	112			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	112			70-130	Pass	
Acenaphthylene	%	109			70-130	Pass	
Anthracene	%	118			70-130	Pass	
Benz(a)anthracene	%	107			70-130	Pass	
Benzo(a)pyrene	%	109			70-130	Pass	
Benzo(b&j)fluoranthene	%	109			70-130	Pass	
Benzo(g.h.i)perylene	%	110			70-130	Pass	
Benzo(k)fluoranthene	%	104			70-130	Pass	
Chrysene	%	114			70-130	Pass	
Dibenz(a.h)anthracene	%	111			70-130	Pass	
Fluoranthene	%	117			70-130	Pass	
Fluorene	%	117			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	109			70-130	Pass	
Naphthalene	%	84			70-130	Pass	
Phenanthrene	%	122			70-130	Pass	
Pyrene	%	117			70-130	Pass	
LCS - % Recovery							
Nitrate & Nitrite (as N)	%	103			70-130	Pass	
Nitrite (as N)	%	106			70-130	Pass	
Phosphate total (as P)	%	105			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	76			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	91			80-120	Pass	
Cadmium (filtered)	%	93			80-120	Pass	
Chromium (filtered)	%	91			80-120	Pass	
Copper (filtered)	%	91			80-120	Pass	
Iron (filtered)	%	89			80-120	Pass	
Lead (filtered)	%	89			80-120	Pass	
Manganese (filtered)	%	92			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury (filtered)			%	100			80-120	Pass	
Nickel (filtered)			%	92			80-120	Pass	
Zinc (filtered)			%	91			80-120	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	S24-Jl0038805	NCP	%	81			70-130	Pass	
TRH C10-C14	S24-Jl0037155	NCP	%	81			70-130	Pass	
TRH C6-C10*	S24-Jl0038805	NCP	%	81			70-130	Pass	
TRH >C10-C16*	S24-Jl0037155	NCP	%	82			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S24-Jl0038805	NCP	%	77			70-130	Pass	
Toluene	S24-Jl0038805	NCP	%	87			70-130	Pass	
Ethylbenzene	S24-Jl0038805	NCP	%	86			70-130	Pass	
m&p-Xylenes	S24-Jl0038805	NCP	%	92			70-130	Pass	
o-Xylene	S24-Jl0038805	NCP	%	88			70-130	Pass	
Xylenes - Total*	S24-Jl0038805	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S24-Jl0038805	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	W24-Jl0032492	NCP	%	103			70-130	Pass	
Acenaphthylene	W24-Jl0032492	NCP	%	100			70-130	Pass	
Anthracene	W24-Jl0032492	NCP	%	111			70-130	Pass	
Benz(a)anthracene	W24-Jl0032492	NCP	%	99			70-130	Pass	
Benzo(a)pyrene	W24-Jl0032492	NCP	%	102			70-130	Pass	
Benzo(b&j)fluoranthene	W24-Jl0032492	NCP	%	99			70-130	Pass	
Benzo(g.h.i)perylene	W24-Jl0032492	NCP	%	103			70-130	Pass	
Benzo(k)fluoranthene	W24-Jl0032492	NCP	%	102			70-130	Pass	
Chrysene	W24-Jl0032492	NCP	%	105			70-130	Pass	
Dibenz(a.h)anthracene	W24-Jl0032492	NCP	%	102			70-130	Pass	
Fluoranthene	W24-Jl0032492	NCP	%	110			70-130	Pass	
Fluorene	W24-Jl0032492	NCP	%	111			70-130	Pass	
Indeno(1.2.3-cd)pyrene	W24-Jl0032492	NCP	%	103			70-130	Pass	
Naphthalene	W24-Jl0032492	NCP	%	79			70-130	Pass	
Phenanthrene	W24-Jl0032492	NCP	%	116			70-130	Pass	
Pyrene	W24-Jl0032492	NCP	%	111			70-130	Pass	
Spike - % Recovery									
				Result 1					
Nitrate & Nitrite (as N)	M24-Jl0040441	NCP	%	113			70-130	Pass	
Nitrite (as N)	M24-Jl0040441	NCP	%	100			70-130	Pass	
Phosphate total (as P)	S24-Jl0037338	CP	%	79			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M24-Jl0014226	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S24-Jl0045319	NCP	%	88			75-125	Pass	
Cadmium (filtered)	S24-Jl0045319	NCP	%	95			75-125	Pass	
Chromium (filtered)	S24-Jl0045319	NCP	%	88			75-125	Pass	
Copper (filtered)	S24-Jl0045319	NCP	%	90			75-125	Pass	
Iron (filtered)	S24-Jl0045319	NCP	%	91			75-125	Pass	
Lead (filtered)	S24-Jl0045319	NCP	%	87			75-125	Pass	
Manganese (filtered)	S24-Jl0045319	NCP	%	91			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury (filtered)	S24-Jl0045319	NCP	%	94			75-125	Pass	
Nickel (filtered)	S24-Jl0045319	NCP	%	90			75-125	Pass	
Zinc (filtered)	S24-Jl0045319	NCP	%	93			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	S24-Jl0038806	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S24-Jl0037154	NCP	mg/L	0.06	0.07	13	30%	Pass	
TRH C15-C28	S24-Jl0037154	NCP	mg/L	0.3	0.2	19	30%	Pass	
TRH C29-C36	S24-Jl0037154	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C6-C10*	S24-Jl0038806	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16*	S24-Jl0037154	NCP	mg/L	0.08	0.09	5.7	30%	Pass	
TRH >C16-C34*	S24-Jl0037154	NCP	mg/L	0.3	0.2	26	30%	Pass	
TRH >C34-C40	S24-Jl0037154	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S24-Jl0038806	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S24-Jl0038806	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S24-Jl0038806	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S24-Jl0038806	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S24-Jl0038806	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S24-Jl0038806	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S24-Jl0038806	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	N24-Jl0037864	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Nitrate & Nitrite (as N)	B24-Jl0037599	NCP	mg/L	0.39	0.38	3.0	30%	Pass	
Nitrite (as N)	B24-Jl0037599	NCP	mg/L	0.25	0.25	<1	30%	Pass	
Phosphate total (as P)	N24-Jl0035143	NCP	mg/L	7.7	7.7	<1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	S24-Jl0038669	NCP	mg/L	1500	1700	8.3	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S24-Jl0045318	NCP	mg/L	0.002	0.002	4.4	30%	Pass	
Cadmium (filtered)	S24-Jl0045318	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S24-Jl0045318	NCP	mg/L	0.12	0.12	2.2	30%	Pass	
Copper (filtered)	S24-Jl0045318	NCP	mg/L	0.002	0.002	11	30%	Pass	
Iron (filtered)	S24-Jl0045318	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead (filtered)	S24-Jl0045318	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S24-Jl0045318	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury (filtered)	S24-Jl0045318	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S24-Jl0045318	NCP	mg/L	0.002	0.001	32	30%	Fail	Q15
Zinc (filtered)	S24-Jl0045318	NCP	mg/L	0.005	< 0.005	10	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.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
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:

Nileshni Goundar	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Maria Tian	Senior Analyst-Organic
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile
Ryan Phillips	Senior Analyst-Inorganic

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Appendix F: Mann Kendall Groundwater Trend Analysis

Location Code	Chem Name	Unit	Earliest	Latest	number_results	number_detects	minimum	maximum	average	percentile80	mann_kendall_trend
MW1	Phenol	µg/L	8-Feb-23	8-Feb-23	1	0	<1.0	<1.0	1	1	
MW1	Nitrate (as N)	mg/L	8-Feb-23	11-Jul-24	4	1	<0.01	<0.1	0.035	0.052	No Trend
MW1	Manganese	mg/L	8-Feb-23	11-Jul-24	4	4	0.59	4.84	2.1525	3.292	Stable
MW1	Nickel	mg/L	8-Feb-23	11-Jul-24	4	4	0.015	0.156	0.0575	0.084	No Trend
MW1	Arsenic	mg/L	8-Feb-23	11-Jul-24	4	4	0.007	0.012	0.0095	0.0114	Stable
MW1	Chromium	mg/L	8-Feb-23	11-Jul-24	4	0	<0.001	<0.001	0.001	0.001	
MW1	Copper	mg/L	8-Feb-23	11-Jul-24	4	2	<0.001	0.015	0.005	0.0078	No Trend
MW1	Zinc	mg/L	8-Feb-23	11-Jul-24	4	4	0.012	0.174	0.06175	0.0966	No Trend
MW1	Ammonia (as N)	mg/L	8-Feb-23	11-Jul-24	4	4	0.19	0.71	0.4675	0.578	Decreasing
MW1	Total BTEX	µg/L	8-Feb-23	11-Jul-24	4	0	<1.0	<1.0	1	1	
MW1	>C10-C40 Fraction (Sum)	µg/L	8-Feb-23	11-Jul-24	4	1	<100.0	520.0	205	268	No Trend
MW1	C6-C10 Fraction minus BTEX (F1)	µg/L	8-Feb-23	11-Jul-24	4	0	<20.0	<20.0	20	20	
MW1	Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	8-Feb-23	11-Jul-24	4	0	<0.5	<0.5	0.5	0.5	
MW2	Phenol	µg/L	8-Feb-23	8-Feb-23	1	0	<1.0	<1.0	1	1	
MW2	Nitrate (as N)	mg/L	8-Feb-23	11-Jul-24	4	2	<0.01	0.03	0.0175	0.024	Stable
MW2	Manganese	mg/L	8-Feb-23	11-Jul-24	4	4	0.96	3.28	1.75	2.368	Increasing
MW2	Nickel	mg/L	8-Feb-23	11-Jul-24	4	4	0.005	0.006	0.00575	0.006	Stable
MW2	Arsenic	mg/L	8-Feb-23	11-Jul-24	4	4	0.004	0.008	0.005	0.0056	Stable
MW2	Chromium	mg/L	8-Feb-23	11-Jul-24	4	0	<0.001	<0.001	0.001	0.001	
MW2	Copper	mg/L	8-Feb-23	11-Jul-24	4	1	<0.001	0.011	0.0035	0.005	No Trend
MW2	Zinc	mg/L	8-Feb-23	11-Jul-24	4	3	<0.005	0.009	0.00775	0.009	Stable
MW2	Ammonia (as N)	mg/L	8-Feb-23	11-Jul-24	4	4	0.26	0.52	0.435	0.52	Stable
MW2	Total BTEX	µg/L	8-Feb-23	11-Jul-24	4	0	<1.0	<1.0	1	1	
MW2	>C10-C40 Fraction (Sum)	µg/L	8-Feb-23	11-Jul-24	4	0	<100.0	<100.0	100	100	
MW2	C6-C10 Fraction minus BTEX (F1)	µg/L	8-Feb-23	11-Jul-24	4	0	<20.0	<20.0	20	20	
MW2	Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	8-Feb-23	11-Jul-24	4	0	<0.5	<0.5	0.5	0.5	
MW3	Phenol	µg/L	8-Feb-23	8-Feb-23	1	0	<1.0	<1.0	1	1	
MW3	Nitrate (as N)	mg/L	8-Feb-23	11-Jul-24	7	3	<0.01	0.1	0.028571429	0.028	No Trend
MW3	Manganese	mg/L	8-Feb-23	11-Jul-24	11	11	5.8	7.4	6.533636364	7	Increasing
MW3	Nickel	mg/L	8-Feb-23	11-Jul-24	12	12	0.16	0.207	0.189833333	0.2	Stable
MW3	Arsenic	mg/L	8-Feb-23	11-Jul-24	12	5	0.002	0.011	0.00775	0.01	Stable
MW3	Chromium	mg/L	8-Feb-23	11-Jul-24	12	3	<0.001	<0.01	0.00675	0.01	Stable
MW3	Copper	mg/L	8-Feb-23	11-Jul-24	12	3	<0.001	<0.01	0.006833333	0.01	Stable
MW3	Zinc	mg/L	8-Feb-23	11-Jul-24	12	12	0.074	0.253	0.195416667	0.2462	Stable
MW3	Ammonia (as N)	mg/L	8-Feb-23	11-Jul-24	4	4	0.22	0.29	0.27	0.29	Stable
MW3	Total BTEX	µg/L	8-Feb-23	11-Jul-24	8	0	<1.0	<1.0	1	1	
MW3	>C10-C40 Fraction (Sum)	µg/L	8-Feb-23	11-Jul-24	12	4	<100.0	910.0	226.6666667	346	No Trend
MW3	C6-C10 Fraction minus BTEX (F1)	µg/L	8-Feb-23	11-Jul-24	12	0	<10.0	<20.0	19.16666667	20	Stable
MW3	Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	8-Feb-23	11-Jul-24	11	0	<0.5	<1.0	0.636363636	1	Stable
MW4	Phenol	µg/L	8-Feb-23	8-Feb-23	1	0	<1.0	<1.0	1	1	
MW4	Nitrate (as N)	mg/L	8-Feb-23	11-Jul-24	4	1	0.01	<0.01	0.01	0.01	
MW4	Manganese	mg/L	8-Feb-23	11-Jul-24	4	4	4.0	6.04	5.13	5.686	Stable
MW4	Nickel	mg/L	8-Feb-23	11-Jul-24	4	4	0.011	0.021	0.01725	0.0204	Decreasing
MW4	Arsenic	mg/L	8-Feb-23	11-Jul-24	4	4	0.005	0.008	0.00675	0.0074	Stable
MW4	Chromium	mg/L	8-Feb-23	11-Jul-24	4	0	<0.001	<0.001	0.001	0.001	
MW4	Copper	mg/L	8-Feb-23	11-Jul-24	4	2	<0.001	0.005	0.002	0.0026	No Trend
MW4	Zinc	mg/L	8-Feb-23	11-Jul-24	4	1	<0.005	0.006	0.00525	0.0054	Stable
MW4	Ammonia (as N)	mg/L	8-Feb-23	11-Jul-24	4	4	0.28	0.34	0.31	0.328	Decreasing
MW4	Total BTEX	µg/L	8-Feb-23	11-Jul-24	4	1	<1.0	2.0	1.25	1.4	Stable
MW4	>C10-C40 Fraction (Sum)	µg/L	8-Feb-23	11-Jul-24	4	0	<100.0	<100.0	100	100	
MW4	C6-C10 Fraction minus BTEX (F1)	µg/L	8-Feb-23	11-Jul-24	4	0	<20.0	<20.0	20	20	
MW4	Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	8-Feb-23	11-Jul-24	4	0	<0.5	<0.5	0.5	0.5	
MW6	Phenol	µg/L	8-Feb-23	8-Feb-23	1	0	<1.0	<1.0	1	1	
MW6	Nitrate (as N)	mg/L	8-Feb-23	11-Jul-24	4	4	0.18	1.93	1.1875	1.756	Stable
MW6	Manganese	mg/L	8-Feb-23	11-Jul-24	4	3	<0.01	0.225	0.08375	0.126	No Trend
MW6	Nickel	mg/L	8-Feb-23	11-Jul-24	4	2	<0.001	0.002	0.00125	0.0014	Stable
MW6	Arsenic	mg/L	8-Feb-23	11-Jul-24	4	2	<0.001	0.002	0.0015	0.002	Stable
MW6	Chromium	mg/L	8-Feb-23	11-Jul-24	4	0	<0.001	<0.001	0.001	0.001	
MW6	Copper	mg/L	8-Feb-23	11-Jul-24	4	1	<0.001	0.003	0.0015	0.0018	Stable
MW6	Zinc	mg/L	8-Feb-23	11-Jul-24	4	1	<0.005	0.006	0.00525	0.0054	Stable
MW6	Ammonia (as N)	mg/L	8-Feb-23	11-Jul-24	4	2	<0.01	0.09	0.0325	0.048	No Trend
MW6	Total BTEX	µg/L	8-Feb-23	11-Jul-24	4	0	<1.0	<1.0	1	1	
MW6	>C10-C40 Fraction (Sum)	µg/L	8-Feb-23	11-Jul-24	4	0	<100.0	<100.0	100	100	
MW6	C6-C10 Fraction minus BTEX (F1)	µg/L	8-Feb-23	11-Jul-24	4	0	<20.0	<20.0	20	20	
MW6	Sum of Polycyclic aromatic hydrocarbons (PAH)	µg/L	8-Feb-23	11-Jul-24	4	0	<0.5	<0.5	0.5	0.5	

Senversa Pty Ltd

ABN 89 132 231 380
www.senversa.com.au
enquiries@senversa.com.au
LinkedIn: Senversa
Facebook: Senversa

CERTIFIED
ISO 9001 • ISO 14001
AS 4801 • ISO 45001
JAS-ANZ

Certified
B
Corporation

Appendix B – Example Quarterly OEMP Checklist

OPERATIONAL ENVIRONMENTAL MANGEMENT PLAN – WETHERILL PARK INSPECTION CHECKLIST

Location:	reDirect – Wetherill Park	**Date:**	28.06.24
Inspection Completed By:	M.Stewart	**Signature:**	M.P Stewart

1. General Management and mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
1.2	Employees and contractors have been inducted and are suitably trained.	As required	**Y**	
1.3	Plant and equipment being used is in good working condition at the start of the day?	Daily	**Y**	

2. Traffic mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
2.1	Traffic is continually monitored by Operations Coordinator?	Daily	**Y**	
2.2	Alll car spaces are free from obstruction and maintained for use by employees and visitors?	Daily	**Y**	
2.3	Vehicles are entering and leaving the site in forward direction.	Daily	**Y**	

3. Air quality, odour and dust mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
3.1	Good dust management procedures are being implemented (inside building): Sweeper working and being used?	Daily	**Y**	
3.2	Good dust management procedures are implemented (outside the building): Sweeper working and being used?	Daily	**Y**	
3.3	Residual waste has been transported offsite (check general waste bin capacity)?	Daily	**Y**	

5. Stormwater mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
5.1	Are there any spills that have been left unattended?	Daily	N	
5.2	Have storm water drains been inspected for any build up of sediment, debris, litter and vegetation within drainage system?	Monthly	**Y**	
5.3	If materials identified in stormwater drains, has it been removed?	Monthly	**Y**	
5.4	Inflow areas and pit grates have been inspected and clear of litter / debris?	Monthly	**Y**	
5.5	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Monthly	**Y**	
5.6	Site structires to be regularly checked for erosion and scouring	Monthly	**Y**	
5.7	Treatment areas and structures will be regularly checked for the build up of litter material	Monthly	**Y**	
5.8	Remove grate and inspect internal walls and base. Remove any collected sediment, debris, litter and vegetation. Inspect and ensure grate is clear following any removal of objects. Ensure flush placement of grate upon refitment.	Quarterly (Mar, Jun, Sep, Dec)	**Y**	Lift grate,brush out lip for grate and down walls remove debris replace grate
5.9	Have all drainage structures been inspected noting any dilapidation, if so have repairs been carried out?	Bi-annually (Jun, Dec)	**Y**	Inspected no action required

5.10	Rainwater tank – has tank been checked for evidence of litter and functioning properly	Bi-annually (Jun, Dec)	**Y**	Check Basket – no litter
5.11	Rainwater tank – has tank been checked for evidence of access by pests (birds, insects, mosquito larvae ect.)	Bi-annually (Jun, Dec)	**Y**	Empty tank inspect no sign of pests
5.12	Rainwater tank – has structural integrity of tank been inspected? Note any dilapidation or repairs required / completed.	Bi-annually (Jun, Dec)	**Y**	No repairs required
5.13	The sediment chamber of the Ecoceptor will be reqgularly checked and cleaned and any damaged covers replaced.	Bi-annually (Jun, Dec)	**Y**	Checked no action required

6. Vermin and pest management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
6.1	Drainage sumps and catch drains will be inspected daily and cleaned regularly to prevent providing a habitat for pests.	Ongoing	**Y**	
6.2	Has the site been inspected for windblown litter? Any identified litter must be removed and disposed appropriately.	Ongoing	**Y**	
6.3	All overhead structures and internal roofs are visually inspected weekly to ensure they are kept clean.	Ongoing	**Y**	

7. Pollution management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
7.1	Are all dangerous goods stored appropriately according to their ADG classes and compatibility?	Daily	**Y**	
7.2	Has training on the pollution incident response management plan been provided in toolbox?	As required	**Y**	

8. Fire management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
8.1	Fire extinguishers are positioned at readily accessible points, including on mobile plant	Daily	**Y**	

9. Noise and vibration mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
9.1	Are defective plant parked up and not being used?	As required	**Y**	

10. Waste management mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
10.1	All waste stored on site onsite is permitted by the EPL?	Daily	**Y**	
10.2	The total amount of waste stored at the premises is under EPL Authorised Amount?	Daily	**Y**	
10.3	The total amount of waste received daily is being recorded via the weighbridges in place?	Daily	**Y**	

11. Flooding mitigations ☐ N/A		**Frequency**	**Y/N/NA**	**General Comments**
11.1	Inspection and maintenance of the Flood Emergency Kit will be undertaken as required to ensure all components are present and in operating condition.	Bi-annually (Jun, Dec)	**Y**	Fully stocked and in good condition
11.2	Yearly (at minimum) evacuation drills will be implemented as part of ongoing training onsite.	Yearly	**Y**	

12. Biodiversity ☐ N/A		Frequency	Y/N/NA	General Comments
12.1	Weed treatment will occur alongside maintenance of landscaping within subject site. This supports compliance with the NSW Biosecurity Act 2015.	Quarterly (Mar, Jun, Sep, Dec)	**Y**	

Action Plan - to be transferred as a 'Hazard Report'

Actions required	Action assigned to	Date assigned	Date to be completed	Signature

Storage and Reference	Inspection Completed By	Date
To be reviewed at Site Meeting.		

Workplace inspection checklists must be completeddaily, stored in the site file and uploaded to Datastation before the end of each day.

Appendix C – Appendix D – Community Complaints

Complaint No	Category	Date Received	Property	Detail	Follow Up Actions
NIL	-	-	-	-	-

Blank Page