WATER MONITORING REPORT (OCTOBER TO DECEMBER 2024)
CONCRUSH FACILITY, TERALBA NSW 2284

Prepared for CONCRUSH PTY LTD

Prepared by RCA Australia

RCA ref 13589a-248/0

FEBRUARY 2025

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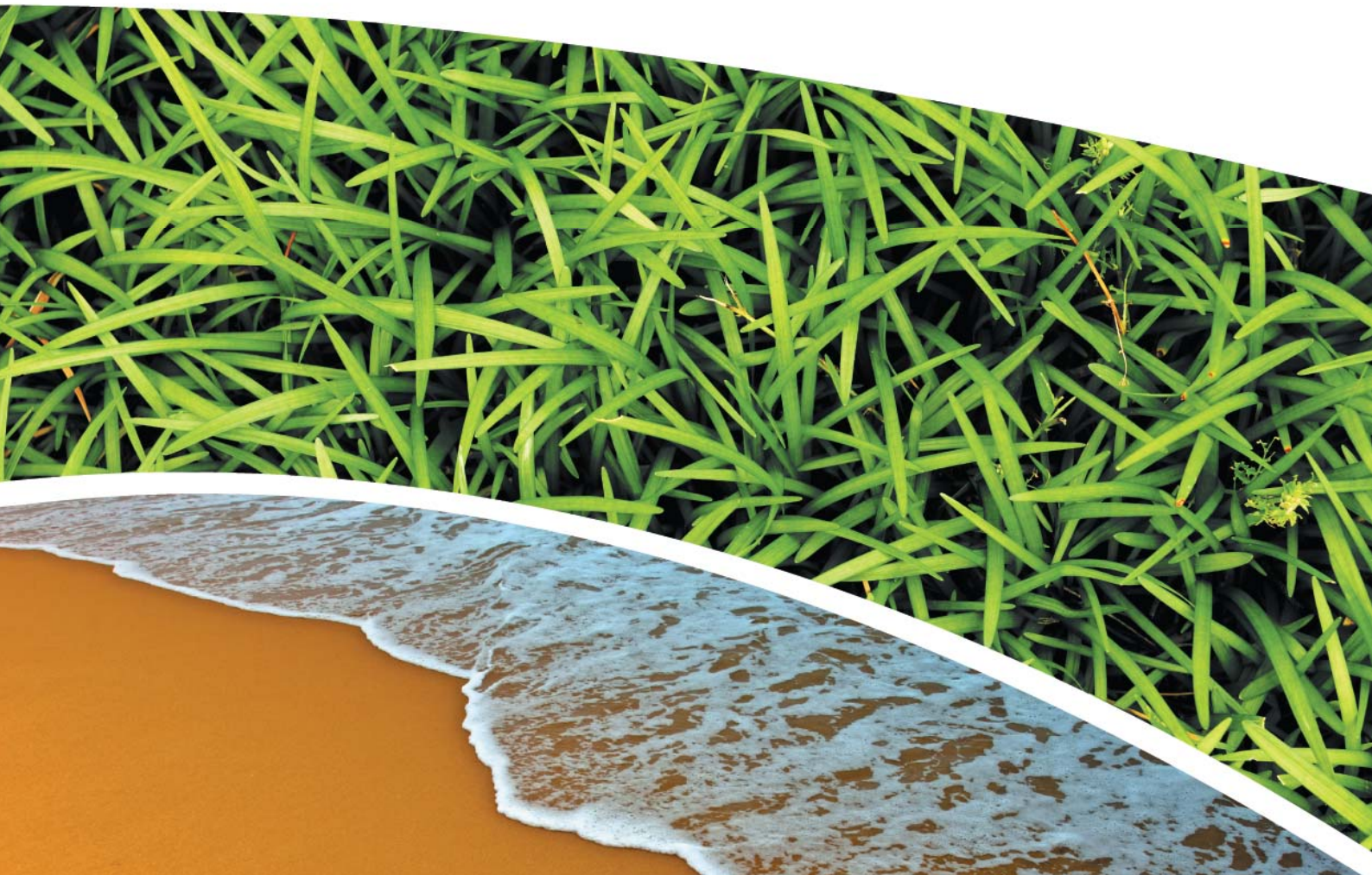

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Contents

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3 February 2025

Concrush Pty Ltd
21 Racecourse Road
Teralba NSW 2284

Attention: Kevin Thompson
CC: Ross Lo Monaco

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WATER MONITORING REPORT (OCTOBER TO DECEMBER 2024) CONCRUSH FACILITY, TERALBA

1. INTRODUCTION

This report presents the findings of water monitoring conducted at the Concrush Resource Recovery Facility in Teralba, NSW, during the last quarter of 2024 (October, November, and December).

The site was an operational facility over the entirety of the monitored area for the reporting period with the exception of a closure from the 21 December 2024. Some construction is ongoing in the northern portion of the site for Sediment Basin 1 and the new weighbridge.

The site's environmental protection licence, EPL13351, specifies water monitoring be undertaken at the two (2) surface water discharge locations (refer to **Figure 2** in Section 3) weekly during discharge. The remainder of monitoring was initially outlined in plans submitted as part of the State Significant Development application for an increase to the facility's capacity (as referenced on the Concrush website[1]). There has been updates to the documentation following the completion of twelve (12) months of operation, in March 2024, and at the time of writing the guidance document is considered to be the:

- Groundwater Management Plan (GMP, Ref [1]).
    - It is noted that the ongoing monitoring requirements for groundwater will be incorporated into the Operational Environmental Management Plan for the site following the finalisation of modification arrangements currently in progress.
- Discharge Verification and Management Report (DVMP, Ref [2]).

This report was undertaken at the request of Ross Lo Monaco of Concrush Pty Ltd.

[1] Concrush.com.au

2. SITE IDENTIFICATION AND DESCRIPTION

The site is described as 21 Racecourse Road, Teralba and part Lot 2, DP 220347. Additional site details are shown in **Table 1** and the site extent is shown in **Figure 1** below.

Table 1 *Site Details*

Current zoning[2]	E5 – Heavy Industrial.
Current use	Concrush resource recovery facility.
Size of site	Approximately 4.8ha.
Surrounding land use to the: **North**	Lot 1 DP220347. Industrial – storage yard for pre-cast concrete panels operated by others.
South	Part of Lot 2 DP220347. Industrial – scrap metal recycling yard operated by others.
East	Racecourse Road and then Cockle Creek.
West	Main Northern Rail line and then wetlands.
Nearest sensitive receptor (human health)	Residential housing, located approximately 360m southeast across Cockle Creek.
Nearest sensitive receptor (environmental)	Cockle Creek, located approximately 35m east and wetland approximately 30m west.

Figure 1 *Project Site Location and Layout (aerial as of 26 June 2024)*

[2] https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

3. MONITORING DETAILS

The site's water management scheme comprises:

- Collection of runoff and seepage from the Green Waste catchment, anticipated to potentially contain nutrients, in the Leachate Pond (LP) which was lined with a flexible membrane liner with a permeability of less than 10^{-14} m/s to prevent potential contamination of groundwater.
- Treatment of nutrients via a constructed Wetland (WL) which has also been lined and populated with appropriate plants to maximise the removal of nutrients. Water is pumped into the WL from the LP.
- Collection of runoff from the remainder of the site into Sediment Dam 1 (SED1) and Sediment Dam 2 (SED2). Water from the Wetland discharges into Sediment Dam 2.

Concrush aims to re-use all surface water on site such that none is discharged however in high rainfall events or periods, some discharge may occur from one or both of the Sediment Dams into the un-named waterway along the western border of the site. This waterway runs to the north and Cockle Creek at the northern end of the site and to the south, wetlands and eventually Cockle Creek at the southern end of the site; the location at which the flow direction changes has not been identified and may vary with seasonal conditions.

A total of eight (8) monitoring locations are situated on-site comprising four (4) surface water locations (LP, WL, SED1 and SED2), two (2) discharge points (DIS-SED1 and DIS-SED2) and two (2) groundwater locations (GW1 and GW3). Additionally, two (2) off-site background surface water locations (SW1 and SW2) are included in the monitoring programme. These locations are shown in **Figure 2**. It is noted that, due to significant vegetation growth to the south of the site, that the sampling undertaken for SW2 during this quarter has been within approximately ten (10) metres of the location of DIS-SED2.

Figure 2 *Water sampling locations*

Monitoring is undertaken on a monthly basis, nominally the last working day of the month however adjusted for the compliance of dust monitoring undertaken at the site, and comprises the recording of depths of water, field readings using a calibrated water quality monitor and the collection of samples for chemical analyses as detailed in **Table 2** below. Due to changes in the operational schedule during the Christmas and New Year period, the December monitoring round was conducted on 2nd January 2025.

Table 2 *Analytical Scope*

Location	Monitored Parameters
GW1	• Depth to groundwater. • Field readings. • Nutrients (ammonia, nitrate, nitrite, total phosphorous). • Hydrocarbons[4] once a quarter.
GW3	
LP	• Depth of water within LP. • Field readings. • pH, electrical conductivity, total suspended solids. • Nutrients (ammonia, nitrate, nitrite, total Kjeldahl nitrogen, total phosphorous).
WL	
SED1	• Field readings. • pH, electrical conductivity, total suspended solids. • Dissolved metals[3]. • Hydrocarbons[4]. • Nutrients (ammonia, nitrate, nitrite, total Kjeldahl nitrogen, total phosphorous).
SED2	
SW1	
SW2	

In the event of discharge from one or both of the Sediment Dams, sampling is undertaken at the discharge points and the associated background surface water locations. Analyses comprises field readings, general water quality, dissolved metals, hydrocarbons and nutrients.

Field sheets are presented in **Appendix A** and laboratory reports are included in **Appendix B**. It is noted that a new laboratory has been used in the last sampling round and that there are differences in the practical quantitation limits compared to those of the previous laboratory.

Results of the water monitoring are compared to criteria as specified in the GMP (Ref [1]) and / or the DVMP (Ref [2]) on a monthly basis and presented to Concrush in a table and graphs.

[3] Aluminium, arsenic, cadmium, chromium, hexavalent chromium, cobalt, copper, lead, nickel, selenium, zinc, boron. Samples are 0.45μm field filtered prior to preservation for metals analyses.

[4] Benzene, toluene, ethylbenzene, xylene, naphthalene (BTEXN), total recoverable hydrocarbons (TRH) and polycyclic aromatic hydrocarbons (PAH).

4. MONITORING RESULTS

4.1 GROUNDWATER

Results of the groundwater monitoring undertaken in the quarter compared to the ecological criteria for fresh and marine waters (Ref [3]) are presented in **Table 3** below. In summary:

- The depth to groundwater was lesser in November than in either October or January. It is noted that the depths include the length of pipe protruding from the ground; historical assessment indicates that the groundwater flow direction is from the western boundary of the site towards the eastern boundary of the site.
- The temperature of the groundwater slightly varied over the monitoring period and between the wells.
- The pH was generally neutral to slightly alkaline at GW1 whereas it was generally neutral to slightly acidic at GW3. RCA have not reported the measured pH values as it was identified that there were issues with the pH sensor on the portable water quality meter such that the results were not reliable.
- The electrical conductivity in both wells falls within the range indicative of fresh water.
- The turbidity of the groundwater is low with the exception of the November sample of GW1. It is noted that the sampling method, tubing with a non-return foot valve, can cause higher than representative turbidity if sediment at the base of the pipe is disturbed. Other sampling options are not available due to kinks within the pipe.
- The dissolved oxygen is low in both wells, indicative of anoxic conditions. It is noted that the sampling method can cause higher than representative dissolved oxygen levels.
- Ammonia (as N) and total phosphorus (as P) consistently exceeded the relevant ecological criteria however align with historical data. It is noted that the site is located in the Cockle Creek Estuary catchment that forms part of the broader Lake Macquarie catchment area, an ecosystem known for natural nutrient inflows that can contribute to higher concentrations of nitrogen and phosphorus.
- Nitrate (as N) and NO_x (as N) were either non-detected or at low concentrations below the relevant criteria, consistent with historical data, with the exception of NO_x at GW1 in November. GW1 is situated upgradient of Concrush's leachate pond and green waste area and as such the November concentration is not considered to be related to Concrush operations.
- BTEX were non-detected, consistent with historical data.
- TRH was non-detected in both wells, consistent with historical data.
- PAH were non-detected, consistent with historical data.

Table 3 *Groundwater Analysis Results*

Analysis	Aquatic Ecosystem Guideline [A]		GW1			GW3		
Date Sampled	95% Fresh	95% Marine	31/10	29/11	02/01	31/10	29/11	02/01
Depth to Groundwater	--	--	2.13	1.38	2.31	2.62	2.29	2.9
Temperature (°C)	--	--	21.9	21.46	22.00	22.26	21.07	20.55
pH (pH units)	--	--	7.34	7.45	not reported	6.15	6.30	not reported
Electrical Conductivity (mS/cm)	--	--	0.804	0.730	1.120	1.190	0.913	1.120
Turbidity (Nephelometric Turbidity unit)	--	--	298	>1000	351	131	90.7	71.9
Dissolved Oxygen	--	--	1.53	0.29	0.79	0.8	0.55	1.01
Ammonia	0.9	0.91	**1.41**	**1.32**	**2.2**	**1.44**	**2.61**	**3.4**
Nitrate	2.4		0.02	0.06	<0.005	0.01	<0.01	<0.005
NOx	0.04		0.02	**0.08**	0.006	0.03	<0.01	<0.005
Total Phosphorus	0.025		**0.04**	**0.53**	**0.2**	**0.11**	**0.07**	**0.06**
Benzene	0.95	0.5	--	<0.001	--	--	<0.001	--
Toluene	0.18		--	<0.002	--	--	<0.002	--
Ethylbenzene	0.08	0.005	--	<0.002	--	--	<0.002	--
Meta- and para-Xylene	0.275		--	<0.002	--	--	<0.002	--
Ortho-Xylene	0.35		--	<0.002	--	--	<0.002	--
TRH C_6-C_{40}	0.007		--	0.16	--	--	0.16	--
Naphthalene	0.016	0.07	--	<0.0001	--	--	<0.0001	--
Phenanthrene [B]	0.002	0.002	--	<0.0001	--	--	<0.0001	--
Anthracene [B]	0.0004	0.0004	--	<0.0001	--	--	<0.0001	--
Fluoranthene [B]	0.0014	0.0014	--	<0.0001	--	--	<0.0001	--
Benzo(a)pyrene [B]	0.0002	0.0002	--	<0.00005	--	--	<0.00005	--

All units in mg/L except where otherwise noted -- indicates no guidelines applicable and / or analyses not required during the specific month

[A] Criteria from ANZG (Ref [3]) with the exception of NOx and phosphorus for Lowland Rivers (coastal environment where available) [B] Bio-accumulative Compounds

Results shown in **bold** more than 95% freshwater guidelines/ the lowland (coastal) river guidelines Results shown in underline in excess of 95% marine water guidelines

4.2 SURFACE WATERS

Results of the surface water monitoring undertaken in the quarter compared to the criteria (Ref [2]) are presented in **Table 5** and **Table 4** below. In summary:

- pH was within the trigger range at both LP and WL throughout the quarter. In contrast, pH consistently exceeded the trigger range at both SED1 and SED2, indicating alkaline conditions. The results for the background waters were within the trigger range at SW2 during three (3) monitoring events and at SW1 during the single monitoring event conducted this quarter.
- No electrical conductivity values exceeded the trigger value at any location throughout the monitoring period.
- The total suspended solids were considered low in all samples (particularly at the LP), except for that in the January sample at SW2.
- Ammonia concentrations exceeded the trigger value in LP and WL throughout this quarter, except for one event at LP in November and another event when WL was dry, and all but one of the monitored events in the sediment dams and background waters.
    - It is noted that plant matter was difficult to exclude from the WP samples and the ammonia concentrations may be, at least partially, representative of this material rather than concentrations in the water.
- Nitrate and NOx were not detected in either LP or WL throughout the monitoring period. These parameters exceeded the trigger values only during the November round at SED1 and the October and November rounds at SED2. At SW2, nitrate and NOx consistently remained below the trigger values throughout the monitoring period, whereas at SW1, they exceeded the trigger values in the single event conducted this quarter.
- Total nitrogen and total phosphorus consistently exceeded the trigger values at all monitoring locations; the most significant nitrogen compound was total Kjeldahl nitrogen.
- Aluminium exceeded the trigger value at SED2 only during the November round, while it remained above the trigger value at SED1 throughout the monitoring period. Hexavalent chromium exceeded the trigger value in the Sediment Dams during the October and November monitoring rounds but was not detected in the January round. Zinc exceeded the trigger value only in SED1 during the October round. The remaining metals were either non-detected or at low concentrations well below the respective trigger values. Similarly, all metals were either non-detected or present below the respective trigger values in the background waters.
- There were no detected hydrocarbons.

Table 4 *Surface Water Analysis Results – Green Waste Catchment*

Analyte	Trigger Values	LP			WL		
Date Sampled		31/10	29/11	02/01	31/10	29/11	02/01
pH (pH units)	6.5-8.0	7.82	7.11	6.7	7.1	7.41	--
Electrical Conductivity (µS/cm)	125-2200	850	968	990	602	519	--
Total Suspended Solids	NA	<5	17	10	280	156	--
Ammonia	0.0264	**0.08**	<0.01	**0.055**	**0.04**	**0.05**	--
Nitrate	0.44	<0.01	<0.01	<0.005	<0.01	<0.01	--
NO_x	0.491	<0.01	<0.01	<0.005	<0.01	<0.01	--
Total Nitrogen	0.645	**1.7**	**3.6**	**2.1**	**4.4**	**4.7**	--
Total Phosphorus	0.0168	**0.08**	**0.7**	**0.2**	**1.24**	**1.33**	--

All units in mg/L except where otherwise noted

NA - not applicable

-- indicates no data (the location was dry)

Results shown in **bold** in excess of the trigger values (Ref [2])

Table 5 *Surface Water Analysis Results – Remainder of Site*

Analyte	Trigger Values	SED1			SW1			SED2			SW2		
Date Sampled		31/10	29/11	02/01	31/10	29/11	02/01	31/10	29/11	02/01	31/10	29/11	02/01
pH (pH units)	6.5-8.0	**9.21**	**8.54**	**8.5**		7.95		**8.51**	**8.06**	**7.9**	7.74	7.76	7.7
Electrical Conductivity (µS/cm)	125-2200	673	460	720		637		380	435	570	754	300	990
Total Suspended Solids	NA	<5	109	57		16		59	84	68	5	70	560
Ammonia	0.0264	**0.13**	**0.28**	**0.2**		**0.05**		**0.05**	0.02	**0.16**	**0.04**	**0.11**	**0.078**
Nitrate	0.44	0.16	**0.57**	0.02		**0.76**		**0.71**	**0.76**	<0.005	<0.01	0.43	<0.005
NO_x	0.491	**0.2**	**0.72**	0.03		**0.96**		**0.93**	**0.98**	<0.005	<0.01	0.49	<0.005
Total Nitrogen	0.645	**1.2**	**1.9**	**1**		**2.7**		**2.2**	**2.2**	**1**	**1.2**	**2.0**	**2**
Total Phosphorus	0.0168	**0.06**	**0.13**	**0.1**		**0.19**		**0.3**	**0.2**	**0.2**	**0.11**	**0.24**	**0.4**
Aluminium	0.08	**0.81**	**0.26**	**0.18**		0.01		0.08	**0.15**	0.07	<0.01	0.07	<0.01
Arsenic	0.094	0.007	0.006	0.009	*Low level*	0.004	*Dry*	0.008	0.014	0.04	0.003	0.002	0.007
Cadmium	0.0004	<0.0001	<0.0001	<0.0001		<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	0.02	0.011	0.015	0.002	*No sample.*	<0.001	*No sample*	0.009	0.017	<0.001	<0.001	<0.001	<0.001
Hexavalent Chromium	0.0033	**0.008**	**0.014**	<0.005		<0.001		**0.009**	**0.017**	<0.005	<0.001	<0.001	<0.005
Cobalt	0.015	0.001	<0.001	<0.001		<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.02	0.01	0.005	0.006		0.002		0.004	0.006	0.003	<0.001	0.006	<0.001
Lead	0.0056	0.005	<0.001	<0.001		<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.013	0.003	0.001	0.002		0.001		<0.001	0.001	0.001	0.001	<0.001	0.002
Selenium	0.018	<0.01	<0.01	0.001		<0.01		<0.01	<0.01	<0.001	<0.01	<0.01	<0.001
Zinc	0.015	**0.022**	<0.005	0.006		0.013		<0.005	<0.005	0.004	<0.005	0.01	0.003
Boron	0.68	0.1	0.08	0.2		0.12		0.05	0.29	0.1	0.12	0.11	0.2
TRH C_6-C_{40}	10	0.16	0.16	0.1075		0.16		0.16	0.16	0.1075	0.16	0.16	0.1075

All units in mg/L except where otherwise noted
NA – Not applicable

Results shown in **bold** are in excess of the management triggers (Ref [2])

4.3 DISCHARGE

Rainfall data obtained from the Bureau of Meteorology weather station at Cooranbong indicated a total rainfall of 217.6mm within the monitoring period (93.2mm in October, 96mm in November, and 28.4mm in December) as presented in **Figure 3** below.

There were no discharge events occurring in the monitoring period.

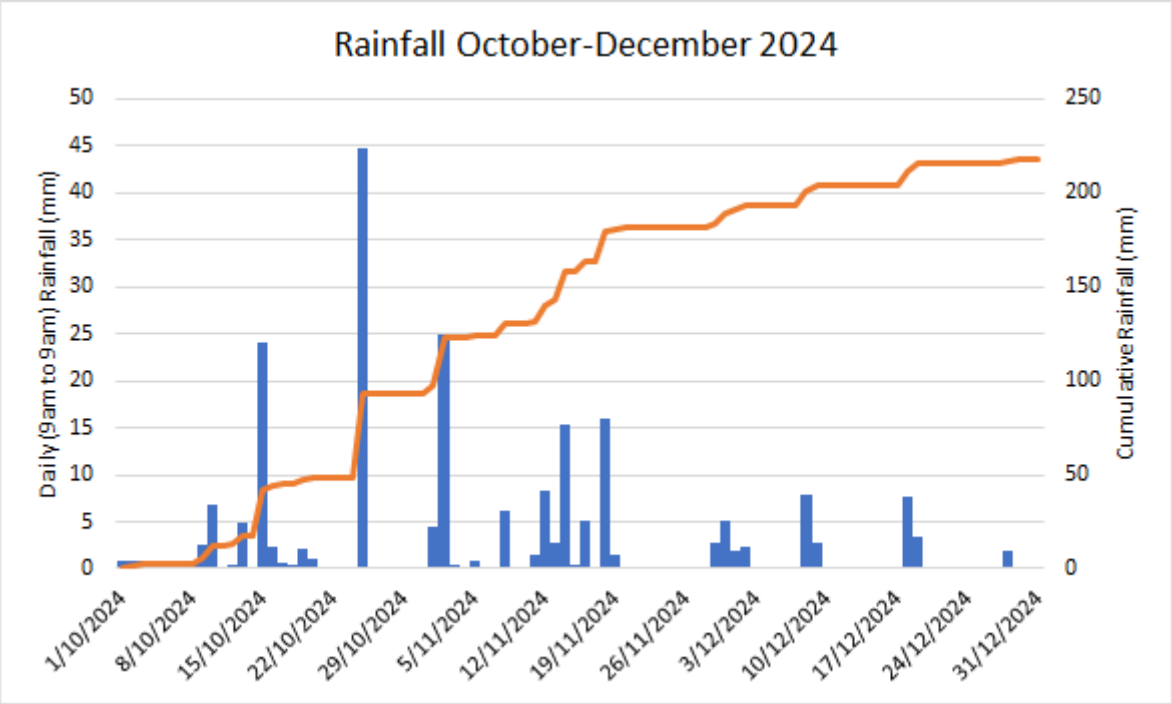

Figure 3 *Rainfall for the Monitoring Period (sourced from Bureau of Meteorology weather station at Cooranbong)*

5. CONCLUSIONS AND RECOMMENDATIONS

Water monitoring was undertaken at the Concrush Resource Recovery Facility through the October-December 2024 quarter in general compliance with the requirements of the EPL and relevant management plans (Ref [1] and Ref [2]) with the exception of sampling at SW1 in October and December, and at WL in December, due to extremely low water levels or dry conditions.

The following conclusions have been made with respect to this quarter's monitoring events:

- Elevated concentrations of ammonia and phosphorous were identified in groundwater exceeding their respective ecological guidelines at both GW1 and GW3. The guidelines are not directly relevant to groundwater and rather are relevant to the receiving water, considered to be Cockle Creek. The quarter's results are consistent with the historical results, including those prior to the commencement of operations in the southern portion of the site, and the results are not considered to indicate any potential impact from the Leachate Pond or Sediment Basin 2, and are rather considered to be representative of the groundwater characteristics within former wetlands.
- No indications of hydrocarbon contamination are present in the groundwater.
- The LP and WL pH results were generally neutral.
- Nutrient concentrations at LP and WL exceeded the trigger values in all the sampling rounds; the dominant form of nitrogen was organic nitrogen. It is noted that some vegetation in the WL samples may be impacting the nitrogen results.
- The pH results of both Sediment Dams were more alkaline than the trigger range in all of the sampling rounds; within the background waters, there was limited data in SW1 during the quarter however the pH values were within the trigger range at both locations.
- Nutrient concentrations at both Sediment Dams exceeded their respective trigger values for throughout the quarter. The available data for the background waters indicated concentrations exceeding the trigger values, with comparable levels observed. There were no discharge events during the quarter such that the quality of water within the Sediment Dams are not considered to have potentially impacted the background waters.
- Instances of aluminium and hexavalent chromium concentrations exceeding their respective trigger values were observed in the Sediment Dams; none of which was identified within the limited data available for the background waters, with the remaining metals were either non-detected or detected at low concentrations below their respective trigger values. Within the Sediment Dams, zinc was present in excess of the trigger value only in SED1 in the October monitoring round.

Water monitoring will continue during the next quarter in accordance with the GMP (Ref [1]) and the DVMP (Ref [2]). The next quarterly report will be prepared after the completion of the March 2025 sampling.

6. LIMITATIONS

This report has been prepared for Concrush Pty Ltd in accordance with an agreement with RCA Australia (RCA). The services performed by RCA have been conducted in a manner consistent with that generally exercised by members of its profession and consulting practice.

This report has been prepared for the sole use of Concrush Pty Ltd. The report may not contain sufficient information for purposes of other uses or for parties other than Concrush Pty Ltd. This report shall only be presented in full and may not be used to support objectives other than those stated in the report without written permission from RCA Australia.

The information in this report is considered accurate at the date of issue with regard to the current conditions of the site. Conditions can vary across any site that cannot be explicitly defined by investigation. Please contact the undersigned if you have any queries.

Environmental conditions including contaminant concentrations can change in a limited period of time. This should be considered if the report is used following a significant period of time after the date of issue.

Yours faithfully

RCA AUSTRALIA

Dr. Anh Hoang
Environmental Scientist
B.S. & M.S.(Env Sci); PhD(Enviro. Remediation)

REFERENCES

[1] RCA Australia, *Groundwater Management Plan, Expansion of the Concrush Resource Recovery Facility, Teralba*, RCA ref 13589-805/1, September 2020.

[2] ENGENY, *Concrush Pty Ltd, Discharge Verification and Mitigation Report,* February 2024.

[3] ANZG, 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., August 2018. Available at www.waterquality.gov.au/anz-guidelines.

[4] ANZECC, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, October 2000.

Appendix A

Field Sheets

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ENGINEERING FIELD SHEET
WATER SAMPLING RECORD

CLIENT: Concrush Pty Ltd
DATE: 31/10/24
PROJECT: Water Quality Monitoring
PROJECT No: 13589a
LOCATION: 21 Racecourse Road, Teralba
CLIENT REF:
PERSONNEL: AH

WATER METER USED: Horiba
DATE & TYPE OF LAST CALIBRATION (1PT OR FULL): Full – refer to Environment Drive for Calibration Certified
METHOD OF SAMPLING: Foot valve for Groundwater, direct for Ponds, Wetland, Basins and Surface Water
PRESERVATION & STORAGE (TICK): Chilled (<4°C) ☐

TESTS REQUIRED:
Groundwater: Nutrients each month, TRH, PAH and BTEX every 3 months.
Leachate Pond and Wetland: , EC, TSS and Nutrients every month.
Sediment Basins: pH, EC, TSS, metals (dissolved) and TRH every month.
Spillways: , EC, TSS, metals (dissolved) and TRH when discharging.
Background Surface water: pH, EC, TSS, metals (dissolved) and TRH every month.

Get Key for side gate from weighbridge to get to SW2

OTHER DETAILS: **Refer to Duplicate Register – name duplicate QAMonthYear.**

BORE OR LOCATION ID: BH3 (Eastern end – adjacent Racecourse Road) Label bottles 'GW3'
TIME: 10:00 **TO** 10:30
BORE DEPTH: 5.09m **HEIGHT ABOVE GROUND LEVEL:** 0.89m
DEPTH TO AQUIFER: 3.51m **VOLUME PURGED:** 5L
RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/ +3L	6.2	1.18	24.5	1.3	20.85	0.059
2/ +1L	6.15	1.19	26.9	1.0	21.68	0.059
3/ +1L	6.15	1.19	131	0.8	22.26	0.060
4/						
5/						
6/						

Sample Appearance: Light grey, slightly turbid, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: Leachate Pond (Eastern end – adjacent Racecourse Road). Sample at outlet to Wetland Pond. Label bottles 'LP'

TIME: 9:40 **TO** 9:55
If discharge not running, remove the cord from time and put directly into power.
At the completion of sampling, return the time to the system.
RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	7.77	0.891	3.7	3.16	22.57	0.044
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Pale yellow, clear, no odour
Duplicate Identification and Other Remarks:

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BORE OR LOCATION ID: Wetland (Eastern end – adjacent Racecourse Road). Label bottles 'WL'
TIME: 10:35 **TO** 10:45

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	6.43	0.622	9.4	0.36	18.64	0.03
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Pale yellow, clear, no odour
Duplicate Identification and Other Remarks: Suspended algae present

BORE OR LOCATION ID: Sediment Dam 2 (South west corner – adjacent railway). Label bottles 'Sed2'
TIME: 11:50 **TO** 12:20

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	8.53	0.389	398	4.32	23.97	0.019
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Brown, turbid, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: Discharge of Sediment 2. Label bottles 'DIS-Sed2'
TIME: _____ **TO** _____ **WATCH for SNAKES**
May have to get sample from outside fence

RESULTS OF WATER QUALITY CHECK: No discharge

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/						
2/						
3/						
4/						
5/						
6/						

Sample Appearance:
Duplicate Identification and Other Remarks:

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GEOTECHNICAL • ENVIRONMENTAL

BORE OR LOCATION ID: SW2 (Western end, south of site boundary, down ladder). Label bottles 'SW2'
TIME: 12:30 **TO** 12:50 **WATCH for SNAKES**
Be careful – poor footing

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	7.67	0.773	9.0	2.56	28.79	0.038
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Pale yellow, clear, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: BH1 (Western end – adjacent Railway) Label bottles 'GW1'
TIME: 11:15 **TO** 11:45
BORE DEPTH: 4.79m **HEIGHT ABOVE GROUND LEVEL:** 0m
DEPTH TO AQUIFER: 2.13m **VOLUME PURGED:** 5L
RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/ +3L	7.34	0.804	347	1.37	21.22	0.039
2/ +1L	7.33	0.795	200	1.09	20.6	0.039
3/ +1L	7.34	0.804	298	1.53	21.9	0.039
4/						
5/						
6/						

Sample Appearance: Grey, turbid, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: Sediment Dam 1 (North west corner – adjacent railway). Label bottles 'Sed1'
TIME: 12:55 **TO** 13:20

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	8.95	0.690	9.5	5.1	29.50	0.033
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Pale yellow, clear, no odour
Duplicate Identification and Other Remarks: Duplicates here

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BORE OR LOCATION ID: Discharge of Sediment 1. Label bottles 'DIS-Sed1' No discharge
TIME: _____ **TO** _____
BORE DEPTH: _____ **HEIGHT ABOVE GROUND LEVEL:** _____
DEPTH TO AQUIFER: _____ **VOLUME PURGED:** _____
RESULTS OF WATER QUALITY CHECK: _____

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/						
2/						
3/						
4/						
5/						
6/						

Sample Appearance: _____
Duplicate Identification and Other Remarks: _____

BORE OR LOCATION ID: SW1 (Western side of Racecourse Road, north of rail access drive). Label bottles 'SW'
TIME: _____ **TO** _____
BORE DEPTH: _____ **HEIGHT ABOVE GROUND LEVEL:** _____
DEPTH TO AQUIFER: _____ **VOLUME PURGED:** _____
RESULTS OF WATER QUALITY CHECK: _____

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/						
2/						
3/						
4/						
5/						
6/						

Sample Appearance: _____
Duplicate Identification and Other Remarks: Not enough water to collect

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

ENGINEERING FIELD SHEET
WATER SAMPLING RECORD

CLIENT: Concrush Pty Ltd **DATE:** 29.11.24
PROJECT: Water Quality Monitoring **PROJECT No:** 13589a
LOCATION: 21 Racecourse Road, Teralba **CLIENT REF:** —
PERSONNEL: AH

WATER METER USED: Horiba
DATE & TYPE OF LAST CALIBRATION (1PT OR FULL): Full – refer to Environment Drive for Calibration Certified
METHOD OF SAMPLING: Foot valve for Groundwater, direct for Ponds, Wetland, Basins and Surface Water
PRESERVATION & STORAGE (TICK): **Chilled (<4°C)** ☑

TESTS REQUIRED:
Groundwater: Nutrients each month, TRH, PAH and BTEX every 3 months.
Leachate Pond and Wetland: , EC, TSS and Nutrients every month.
Sediment Basins: pH, EC, TSS, metals (dissolved) and TRH every month.
Spillways: , EC, TSS, metals (dissolved) and TRH when discharging.
Background Surface water: pH, EC, TSS, metals (dissolved) and TRH every month.

Get Key for side gate from weighbridge to get to SW2

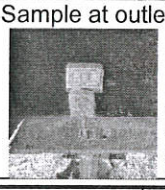
OTHER DETAILS: **Refer to Duplicate Register – name duplicate QAMonthYear.**

BORE OR LOCATION ID: BH3 (Eastern end – adjacent Racecourse Road) Label bottles 'GW3'
TIME: 9:05 **TO** 9:35
BORE DEPTH: 5.09m **HEIGHT ABOVE GROUND LEVEL:** 0.91
DEPTH TO AQUIFER: 3.20m **VOLUME PURGED:** 6L
RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/ +3L	6.36	0.93	109	5.76	20.51	0.046
2/ +2L	6.30	0.915	91.2	5.87	20.77	0.045
3/ +1L	6.30	0.913	90.7	0.55	21.07	0.046
4/						
5/						
6/						

Sample Appearance: Pale grey, slightly turbid, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: Leachate Pond (Eastern end – adjacent Racecourse Road). Sample at outlet to Wetland Pond. Label bottles 'LP'
TIME: 8:45 **TO** 9:00
If discharge not running, remove the cord from time and put directly into power.
At the completion of sampling, return the time to the system.
RESULTS OF WATER QUALITY CHECK:




Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	7.68	0.924	67.5	1.66	24.61	0.045
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Pale yellow, clear, no odour
Duplicate Identification and Other Remarks: Dup collected here

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

BORE OR LOCATION ID: Wetland (Eastern end – adjacent Racecourse Road). Label bottles 'WL'
TIME: 8:15 **TO** 8:30

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	7.22	0.401	396	3.94	22.31	0.019
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Brown, turbid, floating algae, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: Sediment Dam 2 (South west corner – adjacent railway). Label bottles 'Sed2'
TIME: 10:45 **TO** 11:15

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	9.29	0.436	331	3.78	25.03	0.021
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Brown, turbid, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: Discharge of Sediment 2. Label bottles 'DIS-Sed2'
TIME: **TO** **WATCH for SNAKES**
May have to get sample from outside fence

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/						
2/						
3/						
4/						
5/						
6/						

Sample Appearance:
Duplicate Identification and Other Remarks:

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BORE OR LOCATION ID: SW2 (Western end, south of site boundary, down ladder). Label bottles 'SW2'
TIME: 11:55 **TO** 12:45 **WATCH for SNAKES**
Be careful – poor footing

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	9.55	0.437	366	2.65	25.18	0.021
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Grey, turbid, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: BH1 (Western end – adjacent Railway) Label bottles 'GW1'
TIME: 10:10 **TO** 10:35
BORE DEPTH: 4.78m **HEIGHT ABOVE GROUND LEVEL:** 0m
DEPTH TO AQUIFER: 1.38m **VOLUME PURGED:** 8L
RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	7.45	0.721	212	0.88	21.48	0.035
2/	7.45	0.730	>1000	0.91	22.43	0.037
3/	7.45	0.730	7000	0.29	21.46	0.036
4/						
5/						
6/						

Sample Appearance: Dark grey, turbid, no odour
Duplicate Identification and Other Remarks:

Swap data

Swap data

BORE OR LOCATION ID: Sediment Dam 1 (North west corner – adjacent railway). Label bottles 'Sed1'
TIME: 11:25 **TO** 11:45

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	7.42	0.331	212	2.49	24.13	0.016
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Brown, turbid, no odour
Duplicate Identification and Other Remarks:

RCA AUSTRALIA
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BORE OR LOCATION ID: Discharge of Sediment 1. Label bottles 'DIS-Sed1'
TIME: _____ **TO** _____
BORE DEPTH: _____ **HEIGHT ABOVE GROUND LEVEL:** _____
DEPTH TO AQUIFER: _____ **VOLUME PURGED:** _____
RESULTS OF WATER QUALITY CHECK: _____

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/						
2/						
3/						
4/						
5/						
6/						

Sample Appearance: _____
Duplicate Identification and Other Remarks: _____

BORE OR LOCATION ID: SW1 (Western side of Racecourse Road, north of rail access drive). Label bottles 'SW'
TIME: 13:00 **TO** 15:20
BORE DEPTH: _____ **HEIGHT ABOVE GROUND LEVEL:** _____
DEPTH TO AQUIFER: _____ **VOLUME PURGED:** _____
RESULTS OF WATER QUALITY CHECK: _____

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	7.62	0.615	45.9	6.6	24.8	0.030
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Pale yellow, clear, no odour
Duplicate Identification and Other Remarks: _____

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

ENGINEERING FIELD SHEET
WATER SAMPLING RECORD

CLIENT: Concrush Pty Ltd
DATE: 2.1.25
PROJECT: Water Quality Monitoring
PROJECT No: 13589a
LOCATION: 21 Racecourse Road, Teralba
CLIENT REF: _____
PERSONNEL: AH

WATER METER USED: Horiba
DATE & TYPE OF LAST CALIBRATION (1PT OR FULL): Full – refer to Environment Drive for Calibration Certified
METHOD OF SAMPLING: Foot valve for Groundwater, direct for Ponds, Wetland, Basins and Surface Water
PRESERVATION & STORAGE (TICK): **Chilled (<4°C)** ☐

TESTS REQUIRED:
Groundwater: Nutrients each month, TRH, PAH and BTEX every 3 months.
Leachate Pond and Wetland: , EC, TSS and Nutrients every month.
Sediment Basins: pH, EC, TSS, metals (dissolved) and TRH every month.
Spillways: , EC, TSS, metals (dissolved) and TRH when discharging.
Background Surface water: pH, EC, TSS, metals (dissolved) and TRH every month.

Get Key for side gate from weighbridge to get to SW2

OTHER DETAILS: **Refer to Duplicate Register – name duplicate QAMonthYear.**

BORE OR LOCATION ID: BH3 (Eastern end – adjacent Racecourse Road) Label bottles 'GW3'
TIME: 10:00 **TO** 10:30
BORE DEPTH: 5.08m **HEIGHT ABOVE GROUND LEVEL:** 0.91m
DEPTH TO AQUIFER: 3.81m **VOLUME PURGED:** 4L
RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/ +1L	9.13	1.12	54.5	2.63	20.89	0.056
2/ +1L	9.07	1.12	73.5	1.08	20.42	0.055
3/ +1L	9.07	1.12	71.9	1.01	20.55	0.052
4/						
5/						
6/						

Sample Appearance: Light grey, slightly turbid, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: Leachate Pond (Eastern end – adjacent Racecourse Road). Sample at outlet to Wetland Pond. Label bottles 'LP'
TIME: 10:30 **TO** 10:45
If discharge not running, remove the cord from time and put directly into power.
At the completion of sampling, return the time to the system.
RESULTS OF WATER QUALITY CHECK:


Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	10.47	0.976	36.4		24.50	0.048
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Pale yellow, clear, no odour
Duplicate Identification and Other Remarks:

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BORE OR LOCATION ID: Wetland (Eastern end – adjacent Racecourse Road). Label bottles 'WL'
TIME: _____ **TO** _____

Dry - No sample

RESULTS OF WATER QUALITY CHECK: _____

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/						
2/						
3/						
4/						
5/						
6/						

Sample Appearance: _____
Duplicate Identification and Other Remarks: _____

BORE OR LOCATION ID: Sediment Dam 2 (South west corner – adjacent railway). Label bottles 'Sed2'
TIME: 11:50 **TO** 12:20

RESULTS OF WATER QUALITY CHECK: _____

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	11.35	0.568	169	3.21	23.48	0.027
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Brown, Turbid, no odour
Duplicate Identification and Other Remarks: _____

BORE OR LOCATION ID: Discharge of Sediment 2. Label bottles 'DIS-Sed2'
TIME: _____ **TO** _____ **WATCH for SNAKES**

May have to get sample from outside fence

RESULTS OF WATER QUALITY CHECK: No discharge

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/						
2/						
3/						
4/						
5/						
6/						

Sample Appearance: _____
Duplicate Identification and Other Remarks: _____

RCA AUSTRALIA
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BORE OR LOCATION ID: SW2 (Western end, south of site boundary, down ladder). Label bottles 'SW2'
TIME: 12:35 **TO** 13:35

WATCH for SNAKES
Be careful – poor footing

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	10.63	1.01	35.1	3.13	23.13	0.050
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Pale yellow, clear, no odour
Duplicate Identification and Other Remarks: Dup here

BORE OR LOCATION ID: BH1 (Western end – adjacent Railway) Label bottles 'GW1'
TIME: 11:30 **TO** 11:45
BORE DEPTH: 4.77m **HEIGHT ABOVE GROUND LEVEL:** 0m
DEPTH TO AQUIFER: 2.31m **VOLUME PURGED:** 6L
RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/ +1L	9.97	1.12	273	1.55	21.61	0.055
2/ +1L	9.98	1.12	586	1.45	21.89	0.056
3/ +1L	9.98	1.12	351	0.79	22.00	0.055
4/						
5/						
6/						

Sample Appearance: Grey, turbid, no odour
Duplicate Identification and Other Remarks:

BORE OR LOCATION ID: Sediment Dam 1 (North west corner – adjacent railway). Label bottles 'Sed1'
TIME: 13:45 **TO** 14:15

RESULTS OF WATER QUALITY CHECK:

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/	11.62	0.760	12.6	3.92	23.09	0.037
2/						
3/						
4/						
5/						
6/						

Sample Appearance: Grey, turbid, no odour
Duplicate Identification and Other Remarks:

RCA AUSTRALIA
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BORE OR LOCATION ID: Discharge of Sediment 1. Label bottles 'DIS-Sed1'
TIME: _____ **TO** _____ No discharge
BORE DEPTH: _____ **HEIGHT ABOVE GROUND LEVEL:** _____
DEPTH TO AQUIFER: _____ **VOLUME PURGED:** _____
RESULTS OF WATER QUALITY CHECK: _____

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/						
2/						
3/						
4/						
5/						
6/						

Sample Appearance: _____
Duplicate Identification and Other Remarks: _____

BORE OR LOCATION ID: SW1 (Western side of Racecourse Road, north of rail access drive). Label bottles 'SW'
TIME: _____ **TO** _____ Dry - No sample
BORE DEPTH: _____ **HEIGHT ABOVE GROUND LEVEL:** _____
DEPTH TO AQUIFER: _____ **VOLUME PURGED:** _____
RESULTS OF WATER QUALITY CHECK: _____

Check No.	pH	Conductivity (mS/cm)	Turbidity	Dissolved O_2 (mg/L)	Temperature (°C)	Salinity (%)
1/						
2/						
3/						
4/						
5/						
6/						

Sample Appearance: _____
Duplicate Identification and Other Remarks: _____

Appendix B

Laboratory Report Sheets

CERTIFICATE OF ANALYSIS

Work Order	: **ES2435467**	Page	: 1 of 9
Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Contact	: Danae Hambly
Address	: 92 HILL STREET CARRINGTON NSW 2294	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 4902 9200	Telephone	: +61-2-8784 8555
Project	: 13589a	Date Samples Received	: 31-Oct-2024 15:41
Order number	: ----	Date Analysis Commenced	: 31-Oct-2024
C-O-C number	: ----	Issue Date	: 07-Nov-2024 12:27
Sampler	: AH		
Site	: ----		
Quote number	: NSW Custom BQ 2024		
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 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*
Christopher Cameron	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Dian Dao	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.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GW1	GW3	LP	WL	Sed-2
			Sampling date / time	31-Oct-2024 11:45	31-Oct-2024 10:30	31-Oct-2024 09:45	31-Oct-2024 10:45	31-Oct-2024 12:20
Compound	CAS Number	LOR	Unit	ES2435467-001	ES2435467-002	ES2435467-003	ES2435467-004	ES2435467-005
				Result	Result	Result	Result	Result
EA005: pH								
pH Value	----	0.01	pH Unit	----	----	7.82	7.10	8.51
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	850	602	380
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	----	----	<5	280	59
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	----	----	0.08
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	----	----	----	----	0.009
Copper	7440-50-8	0.001	mg/L	----	----	----	----	0.004
Cobalt	7440-48-4	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
Selenium	7782-49-2	0.01	mg/L	----	----	----	----	<0.01
Boron	7440-42-8	0.05	mg/L	----	----	----	----	0.05
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level								
Hexavalent Chromium	18540-29-9	0.001	mg/L	----	----	----	----	0.009
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	1.41	1.44	0.08	0.04	0.05
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.02	<0.01	<0.01	0.22
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	0.71
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.02	0.03	<0.01	<0.01	0.93
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	GW3	LP	WL	Sed-2
				Sampling date / time	31-Oct-2024 11:45	31-Oct-2024 10:30	31-Oct-2024 09:45	31-Oct-2024 10:45	31-Oct-2024 12:20
Compound	CAS Number	LOR	Unit		ES2435467-001	ES2435467-002	ES2435467-003	ES2435467-004	ES2435467-005
					Result	Result	Result	Result	Result
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser - Continued									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		----	----	1.7	4.4	1.3
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		----	----	1.7	4.4	2.2
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.04	0.11	0.08	1.24	0.30
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	----	----	----	<20
C10 - C14 Fraction	----	50	µg/L		----	----	----	----	<50
C15 - C28 Fraction	----	100	µg/L		----	----	----	----	<100
C29 - C36 Fraction	----	50	µg/L		----	----	----	----	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		----	----	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	----	----	----	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	----	----	----	<20
>C10 - C16 Fraction	----	100	µg/L		----	----	----	----	<100
>C16 - C34 Fraction	----	100	µg/L		----	----	----	----	<100
>C34 - C40 Fraction	----	100	µg/L		----	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		----	----	----	----	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		----	----	----	----	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	----	----	----	<1
Toluene	108-88-3	2	µg/L		----	----	----	----	<2
Ethylbenzene	100-41-4	2	µg/L		----	----	----	----	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	----	----	<2
ortho-Xylene	95-47-6	2	µg/L		----	----	----	----	<2
^ Total Xylenes	----	2	µg/L		----	----	----	----	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	GW3	LP	WL	Sed-2
				Sampling date / time	31-Oct-2024 11:45	31-Oct-2024 10:30	31-Oct-2024 09:45	31-Oct-2024 10:45	31-Oct-2024 12:20
Compound	CAS Number	LOR	Unit		ES2435467-001	ES2435467-002	ES2435467-003	ES2435467-004	ES2435467-005
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ **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	%		----	----	----	----	**86.9**
Toluene-D8	2037-26-5	2	%		----	----	----	----	**93.2**
4-Bromofluorobenzene	460-00-4	2	%		----	----	----	----	**105**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW2	Sed-1	QA102024	----	----
				Sampling date / time	31-Oct-2024 12:50	31-Oct-2024 00:00	31-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2435467-006	ES2435467-007	ES2435467-008	--------	--------
					Result	Result	Result	----	----
EA005: pH									
pH Value	----	0.01	pH Unit		**7.74**	**9.21**	**9.14**	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**754**	**673**	**677**	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		**5**	<5	**15**	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	**0.81**	**0.80**	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.003**	**0.007**	**0.007**	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	**0.011**	**0.011**	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	**0.010**	**0.010**	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	**0.001**	**0.001**	----	----
Nickel	7440-02-0	0.001	mg/L		**0.001**	**0.003**	**0.003**	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	**0.005**	**0.005**	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	**0.022**	**0.021**	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	----	----
Boron	7440-42-8	0.05	mg/L		**0.12**	**0.10**	**0.10**	----	----
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level									
Hexavalent Chromium	18540-29-9	0.001	mg/L		<0.001	**0.008**	**0.007**	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.04**	**0.13**	**0.14**	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	**0.04**	**0.04**	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	**0.16**	**0.14**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	**0.20**	**0.18**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW2	Sed-1	QA102024	----	----
				Sampling date / time	31-Oct-2024 12:50	31-Oct-2024 00:00	31-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2435467-006	ES2435467-007	ES2435467-008	--------	--------
					Result	Result	Result	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser - Continued									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**1.2**	**1.0**	**1.0**	**----**	**----**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**1.2**	**1.2**	**1.2**	**----**	**----**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.11**	**0.06**	**0.04**	**----**	**----**
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	**----**	**----**
>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	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW2	Sed-1	QA102024	----	----
				Sampling date / time	31-Oct-2024 12:50	31-Oct-2024 00:00	31-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2435467-006	ES2435467-007	ES2435467-008	--------	--------
					Result	Result	Result	----	----
EP080: BTEXN - Continued									
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	**----**	**----**
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**88.8**	**88.8**	**91.4**	**----**	**----**
Toluene-D8	2037-26-5	2	%		**97.3**	**98.8**	**100**	**----**	**----**
4-Bromofluorobenzene	460-00-4	2	%		**111**	**111**	**113**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(WATER) EA005: pH

QUALITY CONTROL REPORT

Work Order	: **ES2435467**	Page	: 1 of 8
Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Contact	: Danae Hambly
Address	: 92 HILL STREET CARRINGTON NSW 2294	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 4902 9200	Telephone	: +61-2-8784 8555
Project	: 13589a	Date Samples Received	: 31-Oct-2024
Order number	: ----	Date Analysis Commenced	: 31-Oct-2024
C-O-C number	: ----	Issue Date	: 07-Nov-2024
Sampler	: AH		
Site	: ----		
Quote number	: NSW Custom BQ 2024		
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*
Christopher Cameron	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Dian Dao	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 (%)*
EA005: pH (QC Lot: 6162035)									
EN2413960-002	Anonymous	EA005: pH Value	----	0.01	pH Unit	6.62	6.62	0.0	0% - 20%
EN2413981-001	Anonymous	EA005: pH Value	----	0.01	pH Unit	4.87	4.87	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6159805)									
ES2435413-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	637	619	2.8	0% - 20%
ES2435027-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	756	753	0.4	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6167913)									
ES2435416-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	168	158	6.2	0% - 20%
ES2435467-008	QA102024	EA025H: Suspended Solids (SS)	----	5	mg/L	15	17	12.3	No Limit
ES2435519-008	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
ES2435654-002	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	7	5	29.8	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6162833)									
ES2435467-008	QA102024	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.011	0.012	0.0	0% - 50%
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.010	0.010	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.005	0.005	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	0.021	0.020	6.5	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.80	0.78	1.6	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6162833) - continued									
ES2435467-008	QA102024	EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.10	0.09	0.0	No Limit
EN2413912-006	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.002	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: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level (QC Lot: 6169032)									
ES2435467-005	Sed-2	EG050G: Hexavalent Chromium	18540-29-9	0.001	mg/L	0.009	0.010	14.8	0% - 50%
ES2435557-007	Anonymous	EG050G: Hexavalent Chromium	18540-29-9	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6162724)									
ES2435037-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.79	0.79	0.0	0% - 20%
ES2435151-009	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.01	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6162727)									
ES2435467-007	Sed-1	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.13	0.11	14.0	0% - 50%
ES2435557-008	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	1.70	1.74	2.1	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6161569)									
ES2435467-008	QA102024	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.04	0.04	0.0	No Limit
ES2435452-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.12	0.12	0.0	0% - 50%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6162725)									
ES2435037-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2435151-009	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01 (0.10)*	mg/L	144	140	3.2	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6162726)									
ES2435467-007	Sed-1	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.20	0.20	0.0	0% - 50%
ES2435557-008	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.61	0.62	2.5	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6162729)									
ES2435037-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.4	1.3	0.0	0% - 50%
ES2435151-010	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.1	2.0	0.0	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6162728)									
ES2435037-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.09	0.05	49.7	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 (%)*
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6162728) - continued									
ES2435151-010	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	0.48	0.51	5.6	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6162730)									
ES2435467-007	Sed-1	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.06	0.06	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6159597)									
EN2413892-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2435468-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6159597)									
EN2413892-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2435468-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6159597)									
EN2413892-001	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
ES2435468-003	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
EA005: pH (QCLot: 6162035)								
EA005: pH Value	----	----	pH Unit	----	7.6 pH Unit	101	98.5	102
EA010P: Conductivity by PC Titrator (QCLot: 6159805)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	103	89.9	110
				<1	2100 µS/cm	108	90.2	111
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6167913)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	102	83.0	129
				<5	1000 mg/L	98.4	82.0	110
				<5	879 mg/L	99.1	83.0	118
EG020F: Dissolved Metals by ICP-MS (QCLot: 6162833)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	94.1	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.9	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	88.1	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.3	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	91.7	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.8	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.0	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.2	82.0	112
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.5	85.0	115
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.0	81.0	117
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	98.1	85.0	115
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level (QCLot: 6169032)								
EG050G: Hexavalent Chromium	18540-29-9	0.001	mg/L	<0.001	0.05 mg/L	98.6	81.0	115
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6162724)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	109	90.0	114
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6162727)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	109	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6161569)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	102	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6162725)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	101	91.0	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6162726)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.5	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6162729)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	108	69.0	123
				<0.1	1 mg/L	117	70.0	123
				<0.1	5 mg/L	103	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6162728)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	101	71.3	126
				<0.01	0.442 mg/L	109	71.3	126
				<0.01	1 mg/L	105	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6162730)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	102	71.3	126
				<0.01	0.442 mg/L	108	71.3	126
				<0.01	1 mg/L	106	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6159597)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	77.4	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6159909)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	65.5	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	67.8	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	70.4	58.3	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6159597)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	80.0	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6159909)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	67.9	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	68.5	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	65.4	50.5	115
EP080: BTEXN (QCLot: 6159597)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	86.0	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	89.8	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	98.7	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	118	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
EG020F: Dissolved Metals by ICP-MS (QCLot: 6162833)							
EN2413912-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	92.9	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	87.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	94.0	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	90.7	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	90.8	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	90.8	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	90.5	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	92.9	70.0	130
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level (QCLot: 6169032)							
ES2435467-005	Sed-2	EG050G: Hexavalent Chromium	18540-29-9	0.05 mg/L	104	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6162724)							
ES2435037-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	102	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6162727)							
ES2435467-007	Sed-1	EK055G: Ammonia as N	7664-41-7	1 mg/L	107	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6161569)							
ES2435452-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	111	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6162725)							
ES2435037-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	102	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6162726)							
ES2435467-007	Sed-1	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	99.8	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6162729)							
ES2435151-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	102	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6162728)							
ES2435151-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	94.5	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6162730)							
ES2435467-008	QA102024	EK067G: Total Phosphorus as P	----	1 mg/L	106	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6159597)							
EN2413892-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	87.4	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6159597)							
EN2413892-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.7	70.0	130
EP080: BTEXN (QCLot: 6159597)							

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: 6159597) - continued							
EN2413892-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	111	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	107	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	112	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	116	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2435467**	Page	: 1 of 8
Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Telephone	: +61-2-8784 8555
Project	: 13589a	Date Samples Received	: 31-Oct-2024
Site	: ----	Issue Date	: 07-Nov-2024
Sampler	: AH	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.**
- **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)						
TRH - Semivolatile Fraction	EP071	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
TRH - Semivolatile Fraction	EP071	0	11	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*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA005: pH								
Clear Plastic Bottle - Natural (REGIONAL LAB) (EA005)								
LP,	WL,	**31-Oct-2024**	**----**	----	----	**31-Oct-2024**	31-Oct-2024	✓
Sed-2,	SW2,							
Sed-1,	QA102024							
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
LP,	WL,	**31-Oct-2024**	**----**	----	----	**01-Nov-2024**	28-Nov-2024	✓
Sed-2,	SW2,							
Sed-1,	QA102024							
EA025: Total Suspended Solids dried at 104 ± 2°C								
Clear Plastic Bottle - Natural (EA025H)								
LP,	WL,	**31-Oct-2024**	**----**	----	----	**06-Nov-2024**	07-Nov-2024	✓
Sed-2,	SW2,							
Sed-1,	QA102024							
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
Sed-2,	SW2,	**31-Oct-2024**	**----**	----	----	**04-Nov-2024**	29-Apr-2025	✓
Sed-1,	QA102024							
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level								
Clear Plastic Bottle - NaOH Filtered (EG050G LL-F)								
Sed-2,	SW2,	**31-Oct-2024**	**----**	----	----	**06-Nov-2024**	28-Nov-2024	✓
Sed-1,	QA102024							

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G)								
GW1,	GW3,	**31-Oct-2024**	**----**	----	----	**04-Nov-2024**	28-Nov-2024	✓
LP,	WL,							
Sed-2,	SW2,							
Sed-1,	QA102024							
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G)								
GW1,	GW3,	**31-Oct-2024**	**----**	----	----	**01-Nov-2024**	02-Nov-2024	✓
LP,	WL,							
Sed-2,	SW2,							
Sed-1,	QA102024							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G)								
GW1,	GW3,	**31-Oct-2024**	**----**	----	----	**04-Nov-2024**	28-Nov-2024	✓
LP,	WL,							
Sed-2,	SW2,							
Sed-1,	QA102024							
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G)								
LP,	WL,	**31-Oct-2024**	**04-Nov-2024**	28-Nov-2024	✓	**04-Nov-2024**	28-Nov-2024	✓
Sed-2,	SW2,							
Sed-1,	QA102024							
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G)								
GW1,	GW3,	**31-Oct-2024**	**04-Nov-2024**	28-Nov-2024	✓	**04-Nov-2024**	28-Nov-2024	✓
LP,	WL,							
Sed-2,	SW2,							
Sed-1,	QA102024							
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071)								
Sed-2,	SW2,	**31-Oct-2024**	**01-Nov-2024**	07-Nov-2024	✓	**06-Nov-2024**	11-Dec-2024	✓
Sed-1,	QA102024							
Amber VOC Vial - Sulfuric Acid (EP080)								
Sed-2,	SW2,	**31-Oct-2024**	**01-Nov-2024**	14-Nov-2024	✓	**01-Nov-2024**	14-Nov-2024	✓
Sed-1,	QA102024							

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)							
Sed-2, SW2, Sed-1, QA102024	**31-Oct-2024**	**01-Nov-2024**	07-Nov-2024	✓	**06-Nov-2024**	11-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Sed-2, SW2, Sed-1, QA102024	**31-Oct-2024**	**01-Nov-2024**	14-Nov-2024	✓	**01-Nov-2024**	14-Nov-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Sed-2, SW2, Sed-1, QA102024	**31-Oct-2024**	**01-Nov-2024**	14-Nov-2024	✓	**01-Nov-2024**	14-Nov-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	4	26	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Hexavalent Chromium by DA - Low Level	EG050G LL-F	2	14	**14.29**	**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	35	**11.43**	**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
pH	EA005	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	26	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	17	**11.76**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Hexavalent Chromium by DA - Low Level	EG050G LL-F	1	14	**7.14**	**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	35	**5.71**	**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
pH	EA005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	5	35	**14.29**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	16	**18.75**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	6	26	**23.08**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Hexavalent Chromium by DA - Low Level	EG050G LL-F	1	14	**7.14**	**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	35	**5.71**	**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
Suspended Solids (High Level)	EA025H	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**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							
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Hexavalent Chromium by DA - Low Level	EG050G LL-F	1	14	**7.14**	**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	35	**5.71**	**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
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH	EA005	WATER	In house: Referenced to APHA 4500 H+ B. pH of water samples is determined by ISE either manually or by automated pH meter. 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)
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 Hexavalent Chromium by DA - Low Level	EG050G LL-F	WATER	In house: Referenced to APHA 3500 Cr-A & B. Samples are 0.45µm filtered prior to analysis. Hexavalent chromium is determined directly on water sample by Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point 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)

Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

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.

E-MAILED

LAB OF ORIGIN: NEWCASTLE

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8784 8555 E:samples.sydney@alsenviro.com
☐ Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph:02 4968 9433 E:samples.newcastle@alsenviro.com
☐ Brisbane: 32 Shand St, Stafford QLD 4053 Ph:07 3243 7222 E:samples.brisbane@alsenviro.com
☐ Townsville: 14-15 Desma Ct, Bohle QLD 4818 Ph:07 4796 0600 E: townsville.environmental@alsenviro.com
☐ Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph:03 8549 9600 E: samples.melbourne@alsenviro.com
☐ Adelaide: 2-4 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0690 E:adelaide@alsenviro.com
☐ Perth: 10 Hod Way, Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsenviro.com
☐ Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com

CLIENT:	RCA Australia	TURNAROUND REQUIREMENTS : ☐ Standard TAT (List due date): 7/11/24 (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	FOR LABORATORY USE ONLY (Circle)
OFFICE:	92 Hill Street, Carrington		Custody Seal Intact? Yes No N/A
RCA Ref No:	13589a	ALS QUOTE NO.: EN/222/24	Free ice / frozen ice bricks present upon receipt? Yes No N/A
		COC SEQUENCE NUMBER (Circle) COC: 1 OF: 1	Random Sample Temperature on Receipt: C
PROJECT MANAGER: Fiona Brooker		CONTACT PH: 0408 687 529	Other comment: 2 c4
SAMPLER: AH		SAMPLER MOBILE: 0410 220 644	RELINQUISHED BY: Anh Hoang
COC Emailed to ALS? (NO)		EDD FORMAT (or default):	DATE/TIME: 31/10/2024
Email Reports to: administrator@rca.com.au + enviro@rca.com.au			RECEIVED BY: Emma
Email Invoice to: as above			DATE/TIME: 31/10/24 15:40
			RELINQUISHED BY: Emma
			DATE/TIME: 31/10/24 17:00
			RECEIVED BY: CC
			DATE/TIME: 31/10 19:17

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

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	EK055G, EK058G, EK067G (Ammonia as N, Nitrate/Nitrite/NOx as N, Total Phosphorous as P)	EA005P (pH), EA010P (EC), EA025H (suspended solids),NT-08 (TN, NO2, NO3, NH3 & TP)	EA005P (pH), EA010P (EC), EA025H (suspended solids), TPH (TRH C6-C40), NT-08 (TN, NO2, NO3, NH3 & TP)	EG020F Dissolved (Aluminium, Arsenic, Boron, Cadmium, chromium, Cobalt, Copper, Lead, Nickel, Selenium, Zinc)	EG050LL (Low Level Dissolved Cr6)			Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	GW1	31.10.24 - 11:45	W	Unpreserved + Purple Plastic	2	X							
	GW3	31.10.24 - 10:30	W	Unpreserved + Purple Plastic	2	X							
	LP	31.10.24 - 9:45	W	Unpreserved + Purple Plastic	2		X						
	WL	31.10.24 - 10:45	W	Unpreserved + Purple Plastic	2		X						
	Sed-2	31.10.24 - 12:20	W	Unpreserved + Purple + (filtered) Red + Blue Plastic Amber glass + 2x purple amber vials	7			X	X	X			
	SW2	31.10.24 - 12:50	W	Unpreserved + Purple + (filtered) Red + Blue Plastic Amber glass + 2x purple amber vials	7			X	X	X			
	Sed-1	31.10.24	W	Unpreserved + Purple + (filtered) Red + Blue Plastic Amber glass + 2x purple amber vials	7			X	X	X			
	~~SW1~~		W	~~Unpreserved + Purple + (filtered) Red + Blue Plastic~~ Amber glass + 2x purple amber vials									No samples
	QA10.10.24	31.10.24			7			X	X	X			
					36	2	2	4	4	4			

Environmental Division Sydney
Work Order Reference
ES2435467

Telephone : + 61-2-8784 8555

pH @ WN

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2435467**

Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Contact	: Danae Hambly
Address	: 92 HILL STREET CARRINGTON NSW 2294	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: fionab@rca.com.au	E-mail	: danae.hambly@alsglobal.com
Telephone	: +61 02 4902 9200	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4902 9299	Facsimile	: +61-2-8784 8500
Project	: 13589a	Page	: 1 of 3
Order number	: ----	Quote number	: EN2023ROBCAR0002 (NSW Custom BQ 2024)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: AH		

Dates

Date Samples Received	: 31-Oct-2024 15:41	Issue Date	: 31-Oct-2024
Client Requested Due Date	: 07-Nov-2024	Scheduled Reporting Date	: **07-Nov-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 2.4 - Ice present
Receipt Detail	:	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
- **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).**
- **pH analysis will be conducted by ALS Newcastle.**
- 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, NATA accreditation no. 825, site no. 10911.
- 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 - EA005: pH pH	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA025H Suspended Solids - Standard Level	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EK058G Nitrate as N by Discrete Analyser	WATER - EK067G Total Phosphorus as P By Discrete Analyser	WATER - NT-08 Total Nitrogen + NO2 + NO3 + NH3 + Total P
ES2435467-001	31-Oct-2024 11:45	GW1				✓	✓	✓	
ES2435467-002	31-Oct-2024 10:30	GW3				✓	✓	✓	
ES2435467-003	31-Oct-2024 09:45	LP	✓	✓	✓				✓
ES2435467-004	31-Oct-2024 10:45	WL	✓	✓	✓				✓
ES2435467-005	31-Oct-2024 12:20	Sed-2	✓	✓	✓				✓
ES2435467-006	31-Oct-2024 12:50	SW2	✓	✓	✓				✓
ES2435467-007	31-Oct-2024 00:00	Sed-1	✓	✓	✓				✓
ES2435467-008	31-Oct-2024 00:00	QA102024	✓	✓	✓				✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG050G LL-F Dissolved Hexavalent Chromium - Low Level	WATER - TPH TRH (C6-C40)	WATER - W-01 7 Metals
ES2435467-005	31-Oct-2024 12:20	Sed-2	✓	✓	✓	✓
ES2435467-006	31-Oct-2024 12:50	SW2	✓	✓	✓	✓
ES2435467-007	31-Oct-2024 00:00	Sed-1	✓	✓	✓	✓
ES2435467-008	31-Oct-2024 00:00	QA102024	✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ADMINISTRATOR

- *AU Certificate of Analysis - NATA (COA)	Email	administrator@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	administrator@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	administrator@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	administrator@rca.com.au
- A4 - AU Tax Invoice (INV)	Email	administrator@rca.com.au
- Chain of Custody (CoC) (COC)	Email	administrator@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	administrator@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	administrator@rca.com.au

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	administrator@rca.com.au

ENVIRO

- *AU Certificate of Analysis - NATA (COA)	Email	enviro@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enviro@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enviro@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enviro@rca.com.au
- A4 - AU Tax Invoice (INV)	Email	enviro@rca.com.au
- Chain of Custody (CoC) (COC)	Email	enviro@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	enviro@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	enviro@rca.com.au

FIONA BROOKER

- *AU Certificate of Analysis - NATA (COA)	Email	fionab@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fionab@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fionab@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fionab@rca.com.au
- Chain of Custody (CoC) (COC)	Email	fionab@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	fionab@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	fionab@rca.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(WATER) EA005: pH

CERTIFICATE OF ANALYSIS

Work Order	: **ES2439077**	Page	: 1 of 10
Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Contact	: Customer Services ES
Address	: 92 HILL STREET CARRINGTON NSW 2294	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 4902 9200	Telephone	: +61-2-8784 8555
Project	: 13589a	Date Samples Received	: 29-Nov-2024 14:14
Order number	: 13589a	Date Analysis Commenced	: 29-Nov-2024
C-O-C number	: ----	Issue Date	: 10-Dec-2024 15:59
Sampler	: Anh Son Hoang		
Site	: ----		
Quote number	: EN/222		
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.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP132: Where reported, Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GW1	GW3	LP	WL	Sed-2
			Sampling date / time	29-Nov-2024 10:35	29-Nov-2024 09:35	29-Nov-2024 09:00	29-Nov-2024 08:30	29-Nov-2024 11:15
Compound	CAS Number	LOR	Unit	ES2439077-001	ES2439077-002	ES2439077-003	ES2439077-004	ES2439077-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	7.11	7.41	8.06
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	968	519	435
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	----	----	17	156	84
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	----	----	0.15
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	0.014
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	<0.0001
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	0.017
Cobalt	7440-48-4	0.001	mg/L	----	----	----	----	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	----	0.006
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	0.001
Selenium	7782-49-2	0.01	mg/L	----	----	----	----	<0.01
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
Boron	7440-42-8	0.05	mg/L	----	----	----	----	0.29
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level								
Hexavalent Chromium	18540-29-9	0.001	mg/L	----	----	----	----	0.017
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	1.32	2.61	<0.01	0.05	0.02
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	0.02	<0.01	<0.01	<0.01	0.22
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.06	<0.01	<0.01	<0.01	0.76
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.08	<0.01	<0.01	<0.01	0.98
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	GW3	LP	WL	Sed-2
				Sampling date / time	29-Nov-2024 10:35	29-Nov-2024 09:35	29-Nov-2024 09:00	29-Nov-2024 08:30	29-Nov-2024 11:15
Compound	CAS Number	LOR	Unit		ES2439077-001	ES2439077-002	ES2439077-003	ES2439077-004	ES2439077-005
					Result	Result	Result	Result	Result
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser - Continued									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		----	----	3.6	4.7	1.2
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		----	----	3.6	4.7	2.2
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.53	0.07	0.70	1.33	0.20
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
>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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	GW3	LP	WL	Sed-2
				Sampling date / time	29-Nov-2024 10:35	29-Nov-2024 09:35	29-Nov-2024 09:00	29-Nov-2024 08:30	29-Nov-2024 11:15
Compound	CAS Number	LOR	Unit		ES2439077-001	ES2439077-002	ES2439077-003	ES2439077-004	ES2439077-005
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	1	µg/L		<1	<1	----	----	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	<5
EP132B: Polynuclear Aromatic Hydrocarbons									
3-Methylcholanthrene	56-49-5	0.1	µg/L		<0.1	<0.1	----	----	----
2-Methylnaphthalene	91-57-6	0.1	µg/L		<0.1	<0.1	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L		<0.1	<0.1	----	----	----
Acenaphthene	83-32-9	0.1	µg/L		<0.1	<0.1	----	----	----
Acenaphthylene	208-96-8	0.1	µg/L		<0.1	<0.1	----	----	----
Anthracene	120-12-7	0.1	µg/L		<0.1	<0.1	----	----	----
Benz(a)anthracene	56-55-3	0.1	µg/L		<0.1	<0.1	----	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.1	µg/L		<0.1	<0.1	----	----	----
Benzo(e)pyrene	192-97-2	0.1	µg/L		<0.1	<0.1	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.1	µg/L		<0.1	<0.1	----	----	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L		<0.1	<0.1	----	----	----
Chrysene	218-01-9	0.1	µg/L		<0.1	<0.1	----	----	----
Coronene	191-07-1	0.1	µg/L		<0.1	<0.1	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.1	µg/L		<0.1	<0.1	----	----	----
Fluoranthene	206-44-0	0.1	µg/L		<0.1	<0.1	----	----	----
Fluorene	86-73-7	0.1	µg/L		<0.1	<0.1	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L		<0.1	<0.1	----	----	----
Naphthalene	91-20-3	0.1	µg/L		<0.1	<0.1	----	----	----
Perylene	198-55-0	0.1	µg/L		<0.1	<0.1	----	----	----
Phenanthrene	85-01-8	0.1	µg/L		<0.1	<0.1	----	----	----
Pyrene	129-00-0	0.1	µg/L		<0.1	<0.1	----	----	----
^ Sum of PAHs	----	0.05	µg/L		<0.05	<0.05	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	GW1	GW3	LP	WL	Sed-2
				Sampling date / time	29-Nov-2024 10:35	29-Nov-2024 09:35	29-Nov-2024 09:00	29-Nov-2024 08:30	29-Nov-2024 11:15
Compound	CAS Number	LOR	Unit		ES2439077-001	ES2439077-002	ES2439077-003	ES2439077-004	ES2439077-005
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		108	104	----	----	104
Toluene-D8	2037-26-5	2	%		104	102	----	----	95.8
4-Bromofluorobenzene	460-00-4	2	%		115	110	----	----	110
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		90.8	92.0	----	----	----
Anthracene-d10	1719-06-8	0.1	%		92.5	96.9	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%		93.2	96.7	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW2	Sed-1	SW1	QA112024	----
				Sampling date / time	29-Nov-2024 11:45	29-Nov-2024 12:25	29-Nov-2024 13:20	29-Nov-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2439077-006	ES2439077-007	ES2439077-008	ES2439077-009	--------
					Result	Result	Result	Result	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**7.76**	**8.54**	**7.95**	**7.87**	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**300**	**460**	**637**	**972**	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		**70**	**109**	**16**	**18**	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.07**	**0.26**	**0.01**	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.002**	**0.006**	**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	**0.015**	<0.001	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		**0.006**	**0.005**	**0.002**	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	**0.001**	**0.001**	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L		**0.010**	<0.005	**0.013**	----	----
Boron	7440-42-8	0.05	mg/L		**0.11**	**0.08**	**0.12**	----	----
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level									
Hexavalent Chromium	18540-29-9	0.001	mg/L		<0.001	**0.014**	<0.001	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.11**	**0.28**	**0.05**	**0.01**	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.06**	**0.15**	**0.20**	<0.01	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.43**	**0.57**	**0.76**	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.49**	**0.72**	**0.96**	<0.01	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW2	Sed-1	SW1	QA112024	----
				Sampling date / time	29-Nov-2024 11:45	29-Nov-2024 12:25	29-Nov-2024 13:20	29-Nov-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2439077-006	ES2439077-007	ES2439077-008	ES2439077-009	--------
					Result	Result	Result	Result	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser - Continued									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**1.5**	**1.2**	**1.7**	**3.3**	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**2.0**	**1.9**	**2.7**	**3.3**	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.24**	**0.13**	**0.19**	**0.63**	----
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	----	----
>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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW2	Sed-1	SW1	QA112024	----
				Sampling date / time	29-Nov-2024 11:45	29-Nov-2024 12:25	29-Nov-2024 13:20	29-Nov-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2439077-006	ES2439077-007	ES2439077-008	ES2439077-009	--------
					Result	Result	Result	Result	----
EP080: BTEXN - Continued									
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**108**	**103**	**107**	----	----
Toluene-D8	2037-26-5	2	%		**97.2**	**87.0**	**95.2**	----	----
4-Bromofluorobenzene	460-00-4	2	%		**113**	**102**	**110**	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	43	135
Anthracene-d10	1719-06-8	48	138
4-Terphenyl-d14	1718-51-0	48	144

QUALITY CONTROL REPORT

Work Order	: **ES2439077**	Page	: 1 of 10
Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Contact	: Customer Services ES
Address	: 92 HILL STREET CARRINGTON NSW 2294	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 4902 9200	Telephone	: +61-2-8784 8555
Project	: 13589a	Date Samples Received	: 29-Nov-2024
Order number	: 13589a	Date Analysis Commenced	: 29-Nov-2024
C-O-C number	: ----	Issue Date	: 10-Dec-2024
Sampler	: Anh Son Hoang		
Site	: ----		
Quote number	: EN/222		
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 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 (%)*
EA005P: pH by PC Titrator (QC Lot: 6245913)									
ES2439077-003	LP	EA005-P: pH Value	----	0.01	pH Unit	7.11	7.49	5.2	0% - 20%
ES2439622-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.03	6.95	1.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6234805)									
ES2439101-011	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	11100	11000	0.7	0% - 20%
ES2439101-004	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	95300	94100	1.2	0% - 20%
ES2439101-013	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1700	1700	0.4	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6232131)									
ES2438903-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	7100	7560	6.1	0% - 20%
ES2439018-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	3970	3670	7.9	0% - 20%
ES2439077-006	SW2	EA025H: Suspended Solids (SS)	----	5	mg/L	70	66	5.9	0% - 50%
ES2439361-003	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	39	38	3.3	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6229585)									
ES2439077-005	Sed-2	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	0.014	0.013	0.0	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.017	0.017	0.0	0% - 50%
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.006	0.006	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 (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6229585) - continued									
ES2439077-005	Sed-2	EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.15	0.15	0.0	0% - 50%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.29	0.14	67.9	No Limit
ES2439134-015	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	0.002	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.004	0.004	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	0.004	0.004	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level (QC Lot: 6229406)									
ES2439077-005	Sed-2	EG050G: Hexavalent Chromium	18540-29-9	0.001	mg/L	0.017	0.017	0.0	0% - 50%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6229252)									
ES2438867-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	9.43	9.40	0.3	0% - 20%
ES2439076-003	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	13.2	13.2	0.2	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6225673)									
ES2439077-001	GW1	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.02	0.02	0.0	No Limit
ES2439088-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01 (1.00)*	mg/L	192	215	11.3	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6229253)									
ES2438867-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.44	0.41	7.2	0% - 20%
ES2439076-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	20.0	20.0	0.1	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6229254)									
ES2439077-009	QA112024	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: 6229249)									
ES2438867-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	32.1	31.2	2.9	0% - 20%
ES2439066-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (2.0)*	mg/L	163	165	1.2	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6229251)									
ES2439077-004	WL	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	4.7	4.3	8.1	0% - 20%
ES2439137-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.3	0.2	41.4	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6229248)									
ES2438867-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	10.4	9.77	6.3	0% - 20%
ES2439066-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.20)*	mg/L	68.3	71.2	4.2	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6229250)									
ES2439077-004	WL	EK067G: Total Phosphorus as P	----	0.01	mg/L	1.33	1.25	5.9	0% - 20%
ES2439137-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.27	0.26	0.0	0% - 20%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6226628)									
ES2439010-013	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES2439010-009	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6228353)									
ES2439077-001	GW1	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2439201-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	280	270	0.0	0% - 50%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6226628)									
ES2439010-013	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES2439010-009	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6228353)									
ES2439077-001	GW1	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2439201-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	220	220	0.0	0% - 50%
EP080: BTEXN (QC Lot: 6228353)									
ES2439077-001	GW1	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
ES2439201-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6226578)									
ES2439077-001	GW1	EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP132: 3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: 2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Benzo(g.h.i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Dibenz(a.h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP132: Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	0.0	No Limit

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

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

Sub-Matrix: **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: 6245913)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	99.8	98.8	101
				----	7 pH Unit	99.7	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6234805)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	104	89.9	110
				<1	2100 µS/cm	105	90.2	111
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6232131)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	100	83.0	129
				<5	1000 mg/L	108	82.0	110
				<5	879 mg/L	109	83.0	118
EG020F: Dissolved Metals by ICP-MS (QCLot: 6229585)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	107	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	106	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	105	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	103	82.0	112
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	107	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	82.0	112
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	106	85.0	115
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	108	81.0	117
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	105	85.0	115
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level (QCLot: 6229406)								
EG050G: Hexavalent Chromium	18540-29-9	0.001	mg/L	<0.001	0.05 mg/L	101	81.0	115
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6229252)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	99.7	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6225673)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.9	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6229253)								
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: 6229254)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6229254) - continued								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	101	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6229249)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	90.2	69.0	123
				<0.1	1 mg/L	105	70.0	123
				<0.1	5 mg/L	97.6	70.0	123
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6229251)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	90.5	69.0	123
				<0.1	1 mg/L	105	70.0	123
				<0.1	5 mg/L	97.6	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6229248)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	101	71.3	126
				<0.01	0.442 mg/L	101	71.3	126
				<0.01	1 mg/L	109	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6229250)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	103	71.3	126
				<0.01	0.442 mg/L	102	71.3	126
				<0.01	1 mg/L	115	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6226628)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	76.0	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	98.4	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	102	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6228353)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	102	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6226628)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	68.3	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	85.0	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	81.5	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6228353)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	106	75.0	127
EP080: BTEXN (QCLot: 6228353)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	105	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.2	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	104	73.0	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 6228353) - continued								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	105	75.5	124
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 6226578)								
EP132: 3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	2 µg/L	114	60.0	120
EP132: 2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	2 µg/L	96.3	59.0	123
EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	2 µg/L	130	36.0	144
EP132: Acenaphthene	83-32-9	0.1	µg/L	<0.1	2 µg/L	98.8	64.0	122
EP132: Acenaphthylene	208-96-8	0.1	µg/L	<0.1	2 µg/L	98.2	64.0	126
EP132: Anthracene	120-12-7	0.1	µg/L	<0.1	2 µg/L	108	65.0	127
EP132: Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	2 µg/L	108	64.0	130
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	109	64.0	126
EP132: Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.1	µg/L	<0.1	2 µg/L	111	62.0	126
EP132: Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	2 µg/L	109	62.0	126
EP132: Benzo(g.h.i)perylene	191-24-2	0.1	µg/L	<0.1	2 µg/L	108	56.0	126
EP132: Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	2 µg/L	108	68.0	130
EP132: Chrysene	218-01-9	0.1	µg/L	<0.1	2 µg/L	109	66.0	130
EP132: Coronene	191-07-1	0.1	µg/L	<0.1	2 µg/L	102	35.0	133
EP132: Dibenz(a.h)anthracene	53-70-3	0.1	µg/L	<0.1	2 µg/L	108	58.0	128
EP132: Fluoranthene	206-44-0	0.1	µg/L	<0.1	2 µg/L	107	65.0	127
EP132: Fluorene	86-73-7	0.1	µg/L	<0.1	2 µg/L	101	64.0	124
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	2 µg/L	108	57.0	127
EP132: Naphthalene	91-20-3	0.1	µg/L	<0.1	2 µg/L	92.0	54.0	128
EP132: Perylene	198-55-0	0.1	µg/L	<0.1	2 µg/L	110	66.0	130
EP132: Phenanthrene	85-01-8	0.1	µg/L	<0.1	2 µg/L	106	65.0	129
EP132: Pyrene	129-00-0	0.1	µg/L	<0.1	2 µg/L	107	66.0	128

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6229585)							

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: 6229585) - continued							
ES2439077-006	SW2	EG020A-F: Arsenic	7440-38-2	1 mg/L	102	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	104	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	108	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	102	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	108	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	102	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	105	70.0	130
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level (QCLot: 6229406)							
ES2439077-005	Sed-2	EG050G: Hexavalent Chromium	18540-29-9	0.05 mg/L	111	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6229252)							
ES2438867-001	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: 6225673)							
ES2439077-001	GW1	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	105	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6229253)							
ES2438867-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	103	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6229254)							
ES2439077-009	QA112024	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	103	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6229249)							
ES2438975-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	10 mg/L	90.7	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6229251)							
ES2439077-005	Sed-2	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	93.7	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6229248)							
ES2438975-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6229250)							
ES2439077-005	Sed-2	EK067G: Total Phosphorus as P	----	1 mg/L	107	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6226628)							
ES2439010-009	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	95.4	70.0	130
		EP071: C15 - C28 Fraction	----	250 µg/L	112	71.0	130
		EP071: C29 - C36 Fraction	----	200 µg/L	87.2	67.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6228353)							
ES2439077-001	GW1	EP080: C6 - C9 Fraction	----	325 µg/L	92.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6226628)							

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: 6226628) - continued							
ES2439010-009	Anonymous	EP071: >C10 - C16 Fraction	----	250 µg/L	122	70.0	130
		EP071: >C16 - C34 Fraction	----	350 µg/L	93.6	75.0	130
		EP071: >C34 - C40 Fraction	----	150 µg/L	91.3	67.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6228353)							
ES2439077-001	GW1	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	94.3	70.0	130
EP080: BTEXN (QCLot: 6228353)							
ES2439077-001	GW1	EP080: Benzene	71-43-2	25 µg/L	89.7	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	102	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	95.4	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	100	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	101	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	97.8	70.0	130
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 6226578)							
ES2439077-002	GW3	EP132: 3-Methylcholanthrene	56-49-5	2 µg/L	113	59.0	115
		EP132: 2-Methylnaphthalene	91-57-6	2 µg/L	95.8	46.0	120
		EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	2 µg/L	124	21.0	135
		EP132: Acenaphthene	83-32-9	2 µg/L	97.6	62.0	114
		EP132: Acenaphthylene	208-96-8	2 µg/L	98.7	61.0	119
		EP132: Anthracene	120-12-7	2 µg/L	104	68.0	116
		EP132: Benz(a)anthracene	56-55-3	2 µg/L	103	67.0	122
		EP132: Benzo(a)pyrene	50-32-8	2 µg/L	103	72.0	114
		EP132: Benzo(b+j)fluoranthene	205-99-2 205-82-3	2 µg/L	106	69.0	119
		EP132: Benzo(e)pyrene	192-97-2	2 µg/L	103	71.0	119
		EP132: Benzo(g.h.i)perylene	191-24-2	2 µg/L	102	49.0	133
		EP132: Benzo(k)fluoranthene	207-08-9	2 µg/L	101	71.0	124
		EP132: Chrysene	218-01-9	2 µg/L	104	70.0	118
		EP132: Coronene	191-07-1	2 µg/L	96.4	29.0	138
		EP132: Dibenz(a.h)anthracene	53-70-3	2 µg/L	102	60.0	122
		EP132: Fluoranthene	206-44-0	2 µg/L	101	65.0	121
		EP132: Fluorene	86-73-7	2 µg/L	100.0	63.0	118
		EP132: Indeno(1.2.3.cd)pyrene	193-39-5	2 µg/L	103	57.0	123
		EP132: Naphthalene	91-20-3	2 µg/L	92.0	53.0	115
		EP132: Perylene	198-55-0	2 µg/L	105	71.0	118
		EP132: Phenanthrene	85-01-8	2 µg/L	102	67.0	120
		EP132: Pyrene	129-00-0	2 µg/L	101	70.0	117

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2439077**	Page	: 1 of 8
Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Telephone	: +61-2-8784 8555
Project	: 13589a	Date Samples Received	: 29-Nov-2024
Site	: ----	Issue Date	: 10-Dec-2024
Sampler	: Anh Son Hoang	No. of samples received	: 9
Order number	: 13589a	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

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **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	ES2438867--001	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK067G: Total Phosphorus as P by Discrete Analyser	ES2438975--001	Anonymous	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
LP, WL, Sed-2, SW2, Sed-1, SW1, QA112024	----	----	----	09-Dec-2024	29-Nov-2024	**10**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
LP, WL, Sed-2, SW2, Sed-1, SW1, QA112024	**29-Nov-2024**	**----**	----	**----**	**09-Dec-2024**	29-Nov-2024	✘

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
LP, WL, Sed-2, SW2, Sed-1, SW1, QA112024	**29-Nov-2024**	**----**	----	----	**04-Dec-2024**	27-Dec-2024	✓
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H)							
LP, WL, Sed-2, SW2, Sed-1, SW1, QA112024	**29-Nov-2024**	**----**	----	----	**04-Dec-2024**	06-Dec-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
Sed-2, SW2, Sed-1, SW1	**29-Nov-2024**	**----**	----	----	**03-Dec-2024**	28-May-2025	✓
EG050G LL-F: Dissolved Hexavalent Chromium by Discrete Analyser - Low Level							
Clear Plastic Bottle - NaOH (EG050G LL-F)							
Sed-2, SW2, Sed-1, SW1	**29-Nov-2024**	**----**	----	----	**03-Dec-2024**	27-Dec-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
GW1, GW3, LP, WL, Sed-2, SW2, Sed-1, SW1, QA112024	**29-Nov-2024**	**----**	----	----	**04-Dec-2024**	27-Dec-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
GW1, GW3, LP, WL, Sed-2, SW2, Sed-1, SW1, QA112024	**29-Nov-2024**	**----**	----	----	**30-Nov-2024**	01-Dec-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
GW1, GW3, LP, WL, Sed-2, SW2, Sed-1, SW1, QA112024	**29-Nov-2024**	**----**	----	----	**04-Dec-2024**	27-Dec-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
LP, Sed-2, Sed-1, QA112024 / WL, SW2, SW1,	**29-Nov-2024**	**03-Dec-2024**	27-Dec-2024	✓	**03-Dec-2024**	27-Dec-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
GW1, LP, Sed-2, Sed-1, QA112024 / GW3, WL, SW2, SW1,	**29-Nov-2024**	**03-Dec-2024**	27-Dec-2024	✓	**03-Dec-2024**	27-Dec-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
GW1, Sed-2, Sed-1, / GW3, SW2, SW1	**29-Nov-2024**	**02-Dec-2024**	06-Dec-2024	✓	**04-Dec-2024**	11-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
GW1, SW2, / Sed-2, SW1	**29-Nov-2024**	**05-Dec-2024**	13-Dec-2024	✓	**05-Dec-2024**	13-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
GW3, / Sed-1	**29-Nov-2024**	**05-Dec-2024**	13-Dec-2024	✓	**06-Dec-2024**	13-Dec-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
GW1, Sed-2, Sed-1, / GW3, SW2, SW1	**29-Nov-2024**	**02-Dec-2024**	06-Dec-2024	✓	**04-Dec-2024**	11-Jan-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
GW1, SW2, / Sed-2, SW1	**29-Nov-2024**	**05-Dec-2024**	13-Dec-2024	✓	**05-Dec-2024**	13-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
GW3, / Sed-1	**29-Nov-2024**	**05-Dec-2024**	13-Dec-2024	✓	**06-Dec-2024**	13-Dec-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
GW1, SW2, / Sed-2, SW1	**29-Nov-2024**	**05-Dec-2024**	13-Dec-2024	✓	**05-Dec-2024**	13-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
GW3, / Sed-1	**29-Nov-2024**	**05-Dec-2024**	13-Dec-2024	✓	**06-Dec-2024**	13-Dec-2024	✓
EP132B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP132)							
GW1, / GW3	**29-Nov-2024**	**02-Dec-2024**	06-Dec-2024	✓	**03-Dec-2024**	11-Jan-2025	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **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
Conductivity by Auto Titrator	EA010-P	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Hexavalent Chromium by DA - Low Level	EG050G LL-F	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	3	26	**11.54**	**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
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	4	32	**12.50**	**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	2	11	**18.18**	**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
Conductivity by Auto Titrator	EA010-P	3	22	**13.64**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Hexavalent Chromium by DA - Low Level	EG050G LL-F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	26	**7.69**	**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
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	5	39	**12.82**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	6	32	**18.75**	**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	11	**9.09**	**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
Conductivity by Auto Titrator	EA010-P	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Hexavalent Chromium by DA - Low Level	EG050G LL-F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	26	**7.69**	**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
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	39	**5.13**	**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	2	32	**6.25**	**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	11	**9.09**	**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	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Hexavalent Chromium by DA - Low Level	EG050G LL-F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	26	**7.69**	**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
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	32	**6.25**	**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	11	**9.09**	**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)
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 Hexavalent Chromium by DA - Low Level	EG050G LL-F	WATER	In house: Referenced to APHA 3500 Cr-A & B. Samples are 0.45µm filtered prior to analysis. Hexavalent chromium is determined directly on water sample by Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point 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)

Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	In house: Referenced to USEPA 3640 (GPC Cleanup), 8270 GCMS Capiliary column, SIM mode. This method is compliant with 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.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	In house: Referenced to USEPA 3510 (Extraction) / In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with echange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace 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.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8784 8555 E:samples.sydney@alsenviro.com
☐ Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph:02 4968 9433 E:samples.newcastle@alsenviro.com
☐ Brisbane: 32 Shand St, Stafford QLD 4053 Ph:07 3243 7222 E:samples.brisbane@alsenviro.com
☐ Townsville: 14-15 Desma Ct, Bohle QLD 4818 Ph:07 4796 0600 E: townsville.environmental@alsenviro.com
☐ Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph:03 8549 9600 E: samples.melbourne@alsenviro.com
☐ Adelaide: 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0890 E:adelaide@alsenviro.com
☐ Perth: 10 Hod Way, Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsenviro.com
☐ Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com

CLIENT: RCA Australia	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date): 6/12/24 (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)		FOR LABORATORY USE ONLY (Circle)
OFFICE: 92 Hill Street, Carrington			Custody Seal Intact? Yes No N/A
RCA Ref No: 13589a	ALS QUOTE NO.: EN/222/24	COC SEQUENCE NUMBER (Circle) COC: 1 OF: 1	Free ice / frozen ice bricks present upon receipt? Yes No N/A
PROJECT MANAGER: Fiona Brooker	CONTACT PH: 0408 687 529		Random Sample Temperature on Receipt: 1.7 °C
			Other comment:
SAMPLER: Anh Hoang	SAMPLER MOBILE: 0410230644		
COC Emailed to ALS? (NO)	EDD FORMAT (or default):		
Email Reports to: administrator@rca.com.au + enviro@rca.com.au			
Email Invoice to: as above			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Anh Hoang	29/11/24	JN 29/11/24	C-C
DATE/TIME: 29/01/2024 (29.11.24) 14:15	DATE/TIME: 2:17 pm	DATE/TIME: 1700	DATE/TIME: 29/11 19:25

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

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	EK055G, EK058G, EK067G (Ammonia as N, Nitrate/Nitrite/NOx as N, Total Phosphorous as P)	W4 - TRH / BTEX	EP132B - Ultra Trace PAH	EA005P (pH), EA010P (EC), EA025H (suspended solids),NT-08 (TN, NO2, NO3, NH3 & TP)	EA005P (pH), EA010P (EC), EA025H (suspended solids), TPH (TRH C6-C40), NT-08 (TN, NO2, NO3, NH3 & TP)	EG020F Dissolved (Aluminium, Arsenic, Boron, Cadmium, chromium, Cobalt, Copper, Lead, Nickel, Selenium, Zinc)	EG050LL (Low Level Dissolved Cr6)	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	GW1	29.11.24 – 10:35	W	Unpreserved + Purple Plastic 2x amber glass + 2x purple amber vials	6	X	X	X					
2	GW3	29.11.24 – 9:35	W	Unpreserved + Purple Plastic 2x amber glass + 2x purple amber vials	6	X	X	X					
3	LP	29.11.24 – 9:00	W	Unpreserved + Purple Plastic	2				X				
4	WL	29.11.24 – 8:30	W	Unpreserved + Purple Plastic	2				X				
5	Sed-2	29.11.24 – 11:15	W	Unpreserved + Purple + (filtered) Red + Blue Plastic Amber glass + 2x purple amber vials	7					X	X	X	
6	SW2	29.11.24 – 11:45	W	Unpreserved + Purple + (filtered) Red + Blue Plastic Amber glass + 2x purple amber vials	7					X	X	X	
7	Sed-1	29.11.24 – 12:35	W	Unpreserved + Purple + (filtered) Red + Blue Plastic Amber glass + 2x purple amber vials	7					X	X	X	
8	SW1	29.11.24 – 13:20	W	Unpreserved + Purple + (filtered) Red + Blue Plastic Amber glass + 2x purple amber vials	7					X	X	X	
9	QA1 2024	29.11.24	W	Unpreserved + Purple plastic	2				X				
					46	2	2	2	3	4	4	4	

Environmental Division
Sydney
Work Order Reference
ES2439077

Telephone : + 61-2-8784 8555

EMAILED

PH @ WN

LAB OF ORIGIN: NEWCASTLE

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2439077**

Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Contact	: Customer Services ES
Address	: 92 HILL STREET CARRINGTON NSW 2294	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: fionab@rca.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: +61 02 4902 9200	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4902 9299	Facsimile	: +61-2-8784 8500
Project	: 13589a	Page	: 1 of 3
Order number	: 13589a	Quote number	: EP2024ROBCAR0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Anh Son Hoang		

Dates

Date Samples Received	: 29-Nov-2024 14:14	Issue Date	: 09-Dec-2024
Client Requested Due Date	: 10-Dec-2024	Scheduled Reporting Date	: **10-Dec-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 1.7 - 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
- 09/12/2024: This is an updated SRN which indicates the new scheduled release date for this work order.
- **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).**
- **pH analysis will be conducted by ALS Newcastle.**
- 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, NATA accreditation no. 825, site no. 10911.
- 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.

Method Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Dissolved Hexavalent Chromium by DA - Low Level : EG050G LL-F		
Sed-2	- Clear Plastic Bottle - NaOH	- Clear Plastic Bottle - NaOH Filtered
SW2	- Clear Plastic Bottle - NaOH	- Clear Plastic Bottle - NaOH Filtered
Sed-1	- Clear Plastic Bottle - NaOH	- Clear Plastic Bottle - NaOH Filtered
SW1	- Clear Plastic Bottle - NaOH	- Clear Plastic Bottle - NaOH Filtered

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA025H Suspended Solids - Standard Level	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EK058G Nitrate as N by Discrete Analyser	WATER - EK067G Total Phosphorus as P By Discrete Analyser	WATER - EP132B(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - W-04 TRH/BTEXN
ES2439077-001	29-Nov-2024 10:35	GW1			✓	✓	✓	✓	✓
ES2439077-002	29-Nov-2024 09:35	GW3			✓	✓	✓	✓	✓
ES2439077-003	29-Nov-2024 09:00	LP	✓	✓					
ES2439077-004	29-Nov-2024 08:30	WL	✓	✓					
ES2439077-005	29-Nov-2024 11:15	Sed-2	✓	✓					
ES2439077-006	29-Nov-2024 11:45	SW2	✓	✓					
ES2439077-007	29-Nov-2024 12:25	Sed-1	✓	✓					
ES2439077-008	29-Nov-2024 13:20	SW1	✓	✓					
ES2439077-009	29-Nov-2024 00:00	QA112024	✓	✓					

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA005: pH pH	WATER - EA005P pH (Auto Titrator)	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG050G LL-F Dissolved Hexavalent Chromium - Low Level	WATER - NT-08 Total Nitrogen + NO2 + NO3 + NH3 + Total P	WATER - TPH TRH (C6-C40)
ES2439077-003	29-Nov-2024 09:00	LP	✓	✓			✓	
ES2439077-004	29-Nov-2024 08:30	WL	✓	✓			✓	
ES2439077-005	29-Nov-2024 11:15	Sed-2	✓	✓	✓	✓	✓	✓
ES2439077-006	29-Nov-2024 11:45	SW2	✓	✓	✓	✓	✓	✓
ES2439077-007	29-Nov-2024 12:25	Sed-1	✓	✓	✓	✓	✓	✓
ES2439077-008	29-Nov-2024 13:20	SW1	✓	✓	✓	✓	✓	✓
ES2439077-009	29-Nov-2024 00:00	QA112024	✓	✓			✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ADMINISTRATOR

- *AU Certificate of Analysis - NATA (COA)	Email	administrator@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	administrator@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	administrator@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	administrator@rca.com.au
- Chain of Custody (CoC) (COC)	Email	administrator@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	administrator@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	administrator@rca.com.au

ALL INVOICES

- *AU Certificate of Analysis - NATA (COA)	Email	administrator@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	administrator@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	administrator@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	administrator@rca.com.au
- A4 - AU Tax Invoice (INV)	Email	administrator@rca.com.au
- Chain of Custody (CoC) (COC)	Email	administrator@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	administrator@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	administrator@rca.com.au

ENVIRO

- *AU Certificate of Analysis - NATA (COA)	Email	enviro@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enviro@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enviro@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enviro@rca.com.au
- A4 - AU Tax Invoice (INV)	Email	enviro@rca.com.au
- Chain of Custody (CoC) (COC)	Email	enviro@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	enviro@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	enviro@rca.com.au

FIONA BROOKER

- *AU Certificate of Analysis - NATA (COA)	Email	fionab@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fionab@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fionab@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fionab@rca.com.au
- Chain of Custody (CoC) (COC)	Email	fionab@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	fionab@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	fionab@rca.com.au

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customerservice@envirolab.com.au
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CERTIFICATE OF ANALYSIS 369871

Client Details

Client	RCA Australia
Attention	Administrator Administrator
Address	PO Box 175, Carrington, NSW, 2294

Sample Details

Your Reference	**13589a**
Number of Samples	7 Water
Date samples received	09/01/2025
Date completed instructions received	03/01/2025

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.

Report Details

Date results requested by	10/01/2025
Date of Issue	11/01/2025

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Results Approved By
Jack Wallis, Senior Chemist
Laura Schofield, Lab Manager
Loren Bardwell, Development Chemist
Nick Sarlamis, Assistant Operation Manager

Authorised By
Nancy Zhang, Laboratory Manager

vTRH in Water (C6-C9) NEPM				
Our Reference	UNITS	369871-4	369871-5	369871-6
Your Reference		Sed-2	SW2	Sed-1
Date Sampled		02/01/2025	02/01/2025	02/01/2025
Type of sample		Water	Water	Water
Date extracted	-	09/01/2025	09/01/2025	09/01/2025
Date analysed	-	09/01/2025	09/01/2025	09/01/2025
TRH C_6 - C_9	µg/L	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10
Surrogate Dibromofluoromethane	%	94	94	93
Surrogate Toluene-d8	%	99	98	98
Surrogate 4-Bromofluorobenzene	%	105	105	105

svTRH (C10-C40) in Water				
Our Reference		369871-4	369871-5	369871-6
Your Reference	UNITS	Sed-2	SW2	Sed-1
Date Sampled		02/01/2025	02/01/2025	02/01/2025
Type of sample		Water	Water	Water
Date extracted	-	10/01/2025	10/01/2025	10/01/2025
Date analysed	-	10/01/2025	10/01/2025	10/01/2025
TRH C_{10} - C_{14}	µg/L	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50
Surrogate o-Terphenyl	%	85	90	83

HM in water - dissolved				
Our Reference	UNITS	369871-4	369871-5	369871-6
Your Reference		Sed-2	SW2	Sed-1
Date Sampled		02/01/2025	02/01/2025	02/01/2025
Type of sample		Water	Water	Water
Date prepared	-	09/01/2025	09/01/2025	09/01/2025
Date analysed	-	09/01/2025	09/01/2025	09/01/2025
Aluminium-Dissolved	µg/L	70	<10	180
Arsenic-Dissolved	µg/L	40	7	9
Boron-Dissolved	µg/L	100	200	200
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	2
Cobalt-Dissolved	µg/L	<1	<1	<1
Copper-Dissolved	µg/L	3	<1	6
Lead-Dissolved	µg/L	<1	<1	<1
Nickel-Dissolved	µg/L	1	2	2
Selenium-Dissolved	µg/L	<1	<1	1
Zinc-Dissolved	µg/L	4	3	6

Miscellaneous Inorganics						
Our Reference		369871-1	369871-2	369871-3	369871-4	369871-5
Your Reference	UNITS	GW1	GW3	LP	Sed-2	SW2
Date Sampled		02/01/2025	02/01/2025	02/01/2025	02/01/2025	02/01/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	09/01/2025	09/01/2025	09/01/2025	09/01/2025	09/01/2025
Date analysed	-	09/01/2025	09/01/2025	09/01/2025	09/01/2025	09/01/2025
Total Suspended Solids	mg/L	[NA]	[NA]	10	[NA]	[NA]
Ammonia as N in water	mg/L	2.2	3.4	0.055	0.16	0.078
Nitrate as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
NOx as N in water	mg/L	0.006	<0.005	<0.005	<0.005	<0.005
TKN in water	mg/L	[NA]	[NA]	2.1	1.0	2.0
Total Nitrogen in water	mg/L	[NA]	[NA]	2.1	1.0	2.0
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	[NA]	[NA]	[NA]	<0.005	<0.005

Miscellaneous Inorganics		
Our Reference		369871-6
Your Reference	UNITS	Sed-1
Date Sampled		02/01/2025
Type of sample		Water
Date prepared	-	09/01/2025
Date analysed	-	09/01/2025
Ammonia as N in water	mg/L	0.20
Nitrate as N in water	mg/L	0.02
Nitrite as N in water	mg/L	0.011
NOx as N in water	mg/L	0.03
TKN in water	mg/L	0.9
Total Nitrogen in water	mg/L	1
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005

Miscellaneous Inorganics					
Our Reference		369871-3	369871-4	369871-5	369871-6
Your Reference	UNITS	LP	Sed-2	SW2	Sed-1
Date Sampled		02/01/2025	02/01/2025	02/01/2025	02/01/2025
Type of sample		Water	Water	Water	Water
Date prepared	-	02/01/2025	02/01/2025	02/01/2025	02/01/2025
Date analysed	-	02/01/2025	02/01/2025	02/01/2025	02/01/2025
pH	pH Units	6.7	7.9	7.7	8.5
Electrical Conductivity	µS/cm	990	570	990	720

Metals in Waters - Acid extractable						
Our Reference		369871-1	369871-2	369871-3	369871-4	369871-5
Your Reference	UNITS	GW1	GW3	LP	Sed-2	SW2
Date Sampled		02/01/2025	02/01/2025	02/01/2025	02/01/2025	02/01/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	09/01/2025	09/01/2025	09/01/2025	09/01/2025	09/01/2025
Date analysed	-	09/01/2025	09/01/2025	09/01/2025	09/01/2025	09/01/2025
Phosphorus - Total	mg/L	0.2	0.06	0.2	0.2	0.4

Metals in Waters - Acid extractable		
Our Reference		369871-6
Your Reference	UNITS	Sed-1
Date Sampled		02/01/2025
Type of sample		Water
Date prepared	-	09/01/2025
Date analysed	-	09/01/2025
Phosphorus - Total	mg/L	0.1

Method ID	Methodology Summary
Ext-073_F	Analysis of pH in Water by AS 4500 H+ B and in-house method ENV-LAB006, Analysed by Envirolab Newcastle
Ext-073_G	Analysis of Conductivity in Water by AS 2510 B and in-house method ENV-LAB010, Analysed by Envirolab Newcastle
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.

Method ID	Methodology Summary
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-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 in Water (C6-C9) NEPM						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Date analysed	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	88	[NT]
Surrogate Dibromofluoromethane	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	94	[NT]
Surrogate Toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	105	[NT]	[NT]	[NT]	[NT]	108	[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	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[NT]
Date analysed	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
Surrogate o-Terphenyl	%		Org-020	93	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Date analysed	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	[NT]	[NT]	[NT]	[NT]	115	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	369871-4
Date prepared	-			09/01/2025	1	09/01/2025	09/01/2025		09/01/2025	09/01/2025
Date analysed	-			09/01/2025	1	09/01/2025	09/01/2025		09/01/2025	09/01/2025
Total Suspended Solids	mg/L	5	Inorg-019	<5	3	10	[NT]		94	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	2.2	2.1	5	94	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	108	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	85	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.006	<0.005	18	104	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	3	2.1	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	3	2.1	2.1	0	107	130
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	3	09/01/2025	09/01/2025		[NT]	[NT]
Date analysed	-			[NT]	3	09/01/2025	09/01/2025		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	3	0.055	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	3	<0.005	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	3	<0.005	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	3	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			[NT]	[NT]	[NT]	[NT]	[NT]	02/01/2025	[NT]
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	02/01/2025	[NT]
pH	pH Units		Ext-073_F	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
Electrical Conductivity	µS/cm	1	Ext-073_G	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	369871-2
Date prepared	-			09/01/2025	1	09/01/2025	09/01/2025		09/01/2025	09/01/2025
Date analysed	-			09/01/2025	1	09/01/2025	09/01/2025		09/01/2025	09/01/2025
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.2	0.2	0	119	123

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.

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP

Company:	RCA Australia	**RCA Reference Number (i.e. report title)**	13589a
Contact person:	Fiona Brooker		
Project Mgr:	Fiona Brooker	**PO No. (if applicable):**	Not applicable
Sampler:	Anh Hoang	**Envirolab Quote No. :**	BM8
Address:	92 Hill St Carrington, NSW 2294	**Date results required:**	9/01/2025
Phone:	02 4902 9200 **Mob:**	0410 230 644	
Email results to: / **Email invoice to:**	administrator@rca.com.au + enviro@rca.com.au	**Lab comments:**	

ENVIROLAB GROUP
Job No: 369871
Date Received: 9/1/25
Time Received: 1100
Received By: KC
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
02 9910 6200 sydney@envirolab.com.au

Sample Information					Tests Required											Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	# Containers	E01580 - Total Suspended Solids (TSS)	E00705-NH3, E00815-NO2, E00790-NO3, E00850-NOx, E01090-Total P)	E010300 - Nutrient Suite (NH3, NO2, NO3, NOx, TKN (calc), Total N, Total P)	E07290 and E07220 TRH C6-C40	E03010_D - Dissolved (Aluminium, Arsenic, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Zinc)	E05360 - Hexavalent Chromium	E01140 - pH	E01150 - Electrical Conductivity		Sediment within container to be included in analysis if X		Provide as much information about the sample as you can
1	GW1	2/01/2025	Water	4		x								x		
2	GW3	2/01/2025	Water	4		x								x		
3	LP	2/01/2025	Water	4	x		x				x	x		x		
	WL															Dry - No sample
4	Sed-2	2/01/2025	Water	9			x	x	x	x	x	x		x		
5	SW2	2/01/2025	Water	9			x	x	x	x	x	x		x		
6	Sed-1	2/01/2025	Water	9			x	x	x	x	x	x		x		
	SW1															Dry - No sample
7	QA0125	2/01/2025	Water	9												
				Total	48	1	2	4	3	3	3	4	4	7		

				Lab use only:			
Relinquished by (company):	RCA Australia	**Received by (company):** Envirolab	ELS SYD	**Job Number**	369871	**Cooling:**	(Ice) / Ice Pack / None
Print Name:	Anh Hoang	**Print Name:** Yangyi Song	Katherine Chavez	**Temperature**	8°C	**Security Seal:**	(Intact) / Broken / Not Used
Date & Time:	2.1.25 - 15:40	**Date & Time:** 2.1.25, 15:40	9/1/25 1100	**TAT Req:**	(SAME DAY) / 1 / 2 / 3 / 4 / STD		
Signature:		**Signature:**					

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	RCA Australia
Attention	Administrator Administrator

Sample Login Details

Your reference	13589a
Envirolab Reference	369871
Date Sample Received	09/01/2025
Date Instructions Received	03/01/2025
Date Results Expected to be Reported	10/01/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	7 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Samples delivered to ELS Syd @ 9/01/2025 1100

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:

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 ID	vTRH in Water (C6-C9) NEPM	svTRH (C10-C40) in Water	HM in water - dissolved	Total Suspended Solids	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	TKN in water	Total Nitrogen in water	Hexavalent Chromium, Cr6+ (dissolved)	Miscellaneous Inorganics	Metals in Waters -Acid extractable	On Hold
GW1					✓	✓	✓	✓					✓	
GW3					✓	✓	✓	✓					✓	
LP				✓	✓	✓	✓	✓	✓	✓		✓	✓	
Sed-2	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
SW2	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Sed-1	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
QA0125														✓

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.

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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 369871-A

Client Details

Client	RCA Australia
Attention	Enviro RCA
Address	PO Box 175, Carrington, NSW, 2294

Sample Details

Your Reference	**13589a**
Number of Samples	Additional analysis
Date samples received	09/01/2025
Date completed instructions received	16/01/2025

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.

Report Details

Date results requested by	23/01/2025
Date of Issue	23/01/2025

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

Results Approved By
Giovanni Agosti, Group Technical Manager
Jack Wallis, Senior Chemist
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH in Water (C6-C9) NEPM		
Our Reference		369871-A-7
Your Reference	UNITS	QA0125
Date Sampled		02/01/2025
Type of sample		Water
Date extracted	-	22/01/2025
Date analysed	-	23/01/2025
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
Surrogate Dibromofluoromethane	%	101
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	98

svTRH (C10-C40) in Water		
Our Reference	UNITS	369871-A-7
Your Reference		QA0125
Date Sampled		02/01/2025
Type of sample		Water
Date extracted	-	17/01/2025
Date analysed	-	18/01/2025
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	104

HM in water - dissolved		
Our Reference	UNITS	369871-A-7
Your Reference		QA0125
Date Sampled		02/01/2025
Type of sample		Water
Date prepared	-	17/01/2025
Date analysed	-	17/01/2025
Aluminium-Dissolved	µg/L	<10
Arsenic-Dissolved	µg/L	7
Boron-Dissolved	µg/L	100
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Cobalt-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Nickel-Dissolved	µg/L	2
Selenium-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	2

Miscellaneous Inorganics					
Our Reference	UNITS	369871-A-4	369871-A-5	369871-A-6	369871-A-7
Your Reference		Sed-2	SW2	Sed-1	QA0125
Date Sampled		02/01/2025	02/01/2025	02/01/2025	02/01/2025
Type of sample		Water	Water	Water	Water
Date prepared	-	20/01/2025	20/01/2025	20/01/2025	20/01/2025
Date analysed	-	20/01/2025	20/01/2025	20/01/2025	20/01/2025
pH	pH Units	[NA]	[NA]	[NA]	7.8
Electrical Conductivity	µS/cm	[NA]	[NA]	[NA]	960
Total Suspended Solids	mg/L	68	560	57	[NA]
Ammonia as N in water	mg/L	[NA]	[NA]	[NA]	0.19
Nitrate as N in water	mg/L	[NA]	[NA]	[NA]	0.009
Nitrite as N in water	mg/L	[NA]	[NA]	[NA]	<0.005
NOx as N in water	mg/L	[NA]	[NA]	[NA]	0.01
TKN in water	mg/L	[NA]	[NA]	[NA]	1.9
Total Nitrogen in water	mg/L	[NA]	[NA]	[NA]	1.9
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	[NA]	[NA]	[NA]	<0.005

Metals in Waters - Acid extractable		
Our Reference		369871-A-7
Your Reference	UNITS	QA0125
Date Sampled		02/01/2025
Type of sample		Water
Date prepared	-	17/01/2025
Date analysed	-	17/01/2025
Phosphorus - Total	mg/L	0.2

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.

Method ID	Methodology Summary
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-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 in Water (C6-C9) NEPM						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			22/01/2025	[NT]	[NT]	[NT]	[NT]	22/01/2025	[NT]
Date analysed	-			23/01/2025	[NT]	[NT]	[NT]	[NT]	23/01/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate Toluene-d8	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	98	[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-W2	[NT]
Date extracted	-			17/01/2025	[NT]	[NT]	[NT]	[NT]	17/01/2025	[NT]
Date analysed	-			17/01/2025	[NT]	[NT]	[NT]	[NT]	17/01/2025	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	88	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date prepared	-			17/01/2025	[NT]	[NT]	[NT]	[NT]	17/01/2025	[NT]
Date analysed	-			17/01/2025	[NT]	[NT]	[NT]	[NT]	17/01/2025	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	86	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	[NT]	[NT]	[NT]	[NT]	91	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[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]	94	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/01/2025	4	20/01/2025	20/01/2025		20/01/2025	[NT]
Date analysed	-			20/01/2025	4	20/01/2025	20/01/2025		20/01/2025	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	4	68	69	1	99	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	[NT]	[NT]	[NT]	[NT]	102	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	104	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	84	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	100	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			17/01/2025	[NT]	[NT]	[NT]	[NT]	17/01/2025	[NT]
Date analysed	-			17/01/2025	[NT]	[NT]	[NT]	[NT]	17/01/2025	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	104	[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.

Anna Bui

From: Anh Son Hoang <anhh@rca.com.au>
Sent: Thursday, 16 January 2025 1:21 PM
To: Anna Bui; Stuart Chen; Customer Service
Subject: RE: Envirolab Reference 369871

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks. Please analyse those there.

In addition, please analyse **TSS** for the below samples:

5 1. SW2
4 2. Sed2
6 3. Sed1

ELJ REF: 369871-A
TAT: STANDARD
DUE: 23/1/25
AB-

Kind regards,

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

Anh Son Hoang
Environmental Scientist

t: 02 49029244| m: 0410 230 644
e: anhh@rca.com.au | w: www.rca.com.au
a: PO Box 175 / 92 Hill Street, Carrington NSW 2294

From: Anna Bui <ABui@envirolab.com.au>
Sent: Thursday, 16 January 2025 12:16 PM
To: Anh Son Hoang <anhh@rca.com.au>; Stuart Chen <SChen2@envirolab.com.au>; Customer Service <CustomerService@envirolab.com.au>
Subject: RE: Envirolab Reference 369871

No worries.

Has pH/EC already been done for it or do we need to analyse here?

Kind Regards,

Anna Bui | Customer Service | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E ABui@envirolab.com.au | W www.envirolab.com.au

Follow us on: LinkedIn | Facebook | Twitter

Samples will be analysed per our T&C's.

From: Anh Son Hoang <anhh@rca.com.au>
Sent: Thursday, 16 January 2025 12:13 PM
To: Stuart Chen <SChen2@envirolab.com.au>; Customer Service <CustomerService@envirolab.com.au>
Subject: RE: Envirolab Reference 369871

Thanks Stuart.

Standard turnover should be alright.

Regards,

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

Anh Son Hoang
Environmental Scientist

t: 02 49029244| m: 0410 230 644
e: anhh@rca.com.au | w: www.rca.com.au
a: PO Box 175 / 92 Hill Street, Carrington NSW 2294

From: Stuart Chen <SChen2@envirolab.com.au>
Sent: Thursday, 16 January 2025 12:11 PM
To: Anh Son Hoang <anhh@rca.com.au>; Customer Service <CustomerService@envirolab.com.au>
Subject: RE: Envirolab Reference 369871

CAUTION: This email was sent by an external user with the same display name. This email might be fraudulent

Hi Anh,

No worries, did you need these ones urgently done?

@Customer Service Please login A-job.

Kind Regards,

Stuart Chen | Report Coordinator | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E SChen2@envirolab.com.au | W www.envirolab.com.au

From: Anh Son Hoang <anhh@rca.com.au>
Sent: Thursday, 16 January 2025 12:02 PM
To: Customer Service <CustomerService@envirolab.com.au>
Subject: Envirolab Reference 369871

Hi team,

Due to a paperwork issue, a sample was not analyzed although it was sent to the lab. It is the **QA0125.** 7

Could you please work on this sample with similar analyses to Sed-1, Sed-2 and SW1? I have attached the COC for your reference.

Kind regards,

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	RCA Australia
Attention	Enviro RCA

Sample Login Details

Your reference	13589a
Envirolab Reference	369871-A
Date Sample Received	09/01/2025
Date Instructions Received	16/01/2025
Date Results Expected to be Reported	23/01/2025

Sample Condition

Samples received in appropriate condition for analysis	Holding time exceedance
No. of Samples Provided	Additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

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:

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 ID	vTRH in Water (C6-C9) NEPM	svTRH (C10-C40) in Water	HM in water - dissolved	pH	Electrical Conductivity	Total Suspended Solids	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	TKN in water	Total Nitrogen in water	Hexavalent Chromium, Cr6+ (dissolved)	Metals in Waters -Acid extractable	On Hold
GW1															✓
GW3															✓
LP															✓
Sed-2						✓									
SW2						✓									
Sed-1						✓									
QA0125	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	

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.