

**DISCHARGE WATER MONITORING UNDERTAKEN  
DURING SEPTEMBER 2023**

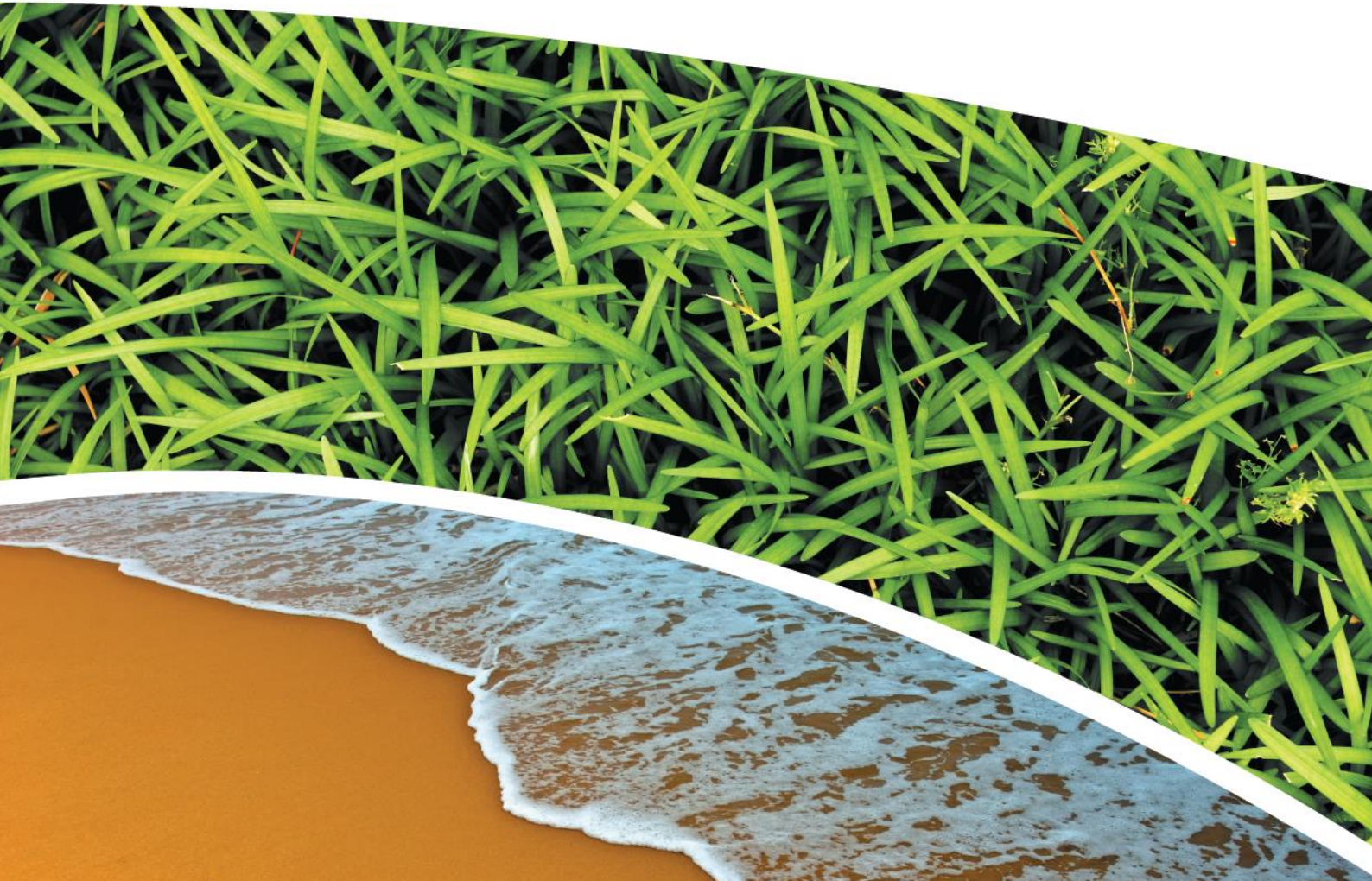
**KOORAGANG ISLAND FACILITY**

**Prepared for INCITEC PIVOT LTD**

**Prepared by RCA AUSTRALIA**

**RCA Ref 6919-1371/0**

**NOVEMBER 2023**



RCA ref 6919-1371/0



23 November 2023

Incitec Pivot Limited  
PO Box 148  
MAYFIELD NSW 2304

Attention: Mr Anthony Peters

Geotechnical Engineering

Engineering Geology

Environmental Engineering

Hydrogeology

Construction Materials Testing

Environmental Monitoring

Noise & Vibration

Occupational Hygiene

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**REPORT COMPILED FOR INCITEC PIVOT PTY LTD  
DETAILING THE DISCHARGE WATER MONITORING  
AT THE KOORAGANG ISLAND FACILITY  
DURING SEPTEMBER 2023**

*This report must not be reproduced except in full.*

*Results or figures from this report must not be used without acknowledgment.*

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## **1 GENERAL COMMENTS**

Job number: 6919.

Client Order Number: 46027674.

Date Samples Received: During September 2023.

Samples received were sampled by RCA Laboratories – Environmental staff.

**Note: Sampling of Surface and Ground Waters by the client and/or by RCA Laboratories - Environmental staff is not covered by our NATA Scope of Accreditation.**

## **2 PROCEDURES**

The analytical procedures used by RCA Laboratories - Environmental are based on established internationally recognised procedures such as APHA and Australian Standards. Analytical test methods are detailed in **Table 1** and **Appendix A**.

**Table 1** *Analytical Test Methods*

<b>Analysis</b>	<b>Method</b>	<b>Units</b>	<b>Analysing Laboratory</b>	<b>NATA Status</b>
pH	ENV-LAB006	pH unit	RCA Laboratories - Environmental	NATA
Total Suspended Solids	ENV-LAB009	mg/L	RCA Laboratories - Environmental	NATA
Sulfur as S	ED043	mg/L	ALS	Non-NATA; NATA
Sulfate as SO <sub>4</sub>	ED041G	mg/L	ALS	NATA
Dissolved As, Cd, Pb & Zn	EG020F	mg/L	ALS	NATA
Total As, Cd, Pb & Zn	EG020T	mg/L	ALS	NATA
Total & Dissolved Mercury	EG035T/EG035F	mg/L	ALS	NATA
Ammonia as N	EK055G	mg/L	ALS	NATA
Nitrite as N	EK057G	mg/L	ALS	NATA
Nitrate as N	EK058G	mg/L	ALS	NATA
Nitrite and Nitrate as N	EK059G	mg/L	ALS	Non-NATA; NATA
Total Kjeldahl Nitrogen as N	EK061G	mg/L	ALS	NATA
Total Nitrogen as N	EK062G	mg/L	ALS	NATA
Phosphorus (Total) as P	EK067G	mg/L	ALS	Non-NATA; NATA
Phosphorus (Reactive) as P	EK071G	mg/L	ALS	NATA
Phosphate (Calculation from Total Phosphorus)	EK067G	mg/L	ALS	Non-NATA; NATA
Sulfide (Total) as S <sup>2-</sup>	EK084	mg/L	ALS	NATA
Sulfide (Dissolved) as S <sup>2-</sup>	EK085M	mg/L	ALS	NATA

When an external testing laboratory is used to obtain the analysis of samples which become a part of this report, then the details of that laboratory's NATA accreditation and their official report have been attached as an appendix. Refer to ALS Environmental (NATA accreditation number 825) reports in **Appendix B**.



### 3 WATER ANALYSIS RESULTS

#### 3.1 GENERAL COMMENTS

An automated ISCO water sampler is located on the central stormwater drainage line within the Incitec site. This central drainage line has recently undergone improvement works and carries the entire site's stormwater. The northern ISCO water sampler has been decommissioned.

The central automated water sampler is connected to a rain gauge. A magnetic flow meter is also located at the central drainage line. Stormwater samples are automatically collected by the ISCO water sampler when the following two (2) conditions are met:

- A minimum of 2mm of rainfall in a 60-minute period is recorded; and
- Flow is detected over the weir plate inside the stormwater pit.

Samples are collected every 15 minutes provided that these two (2) conditions are continued to be satisfied. Samples are composited per rainfall event. A rainfall event is defined as the continuous length of time the rainfall and flow conditions are met, that is if one sample is collected every 15 minutes. The cessation of these conditions being satisfied indicates the end of a rainfall event.

Stormwater discharge quality monitoring is undertaken by RCA Australia in accordance with the site's Environment Protection Licence (EPL) 11781. Stormwater monitoring is undertaken at EPA identification site 7 (Central Drain).

The central stormwater drain was checked for samples and reset by RCA Laboratories – Environmental staff on 12 and 28 September 2023.

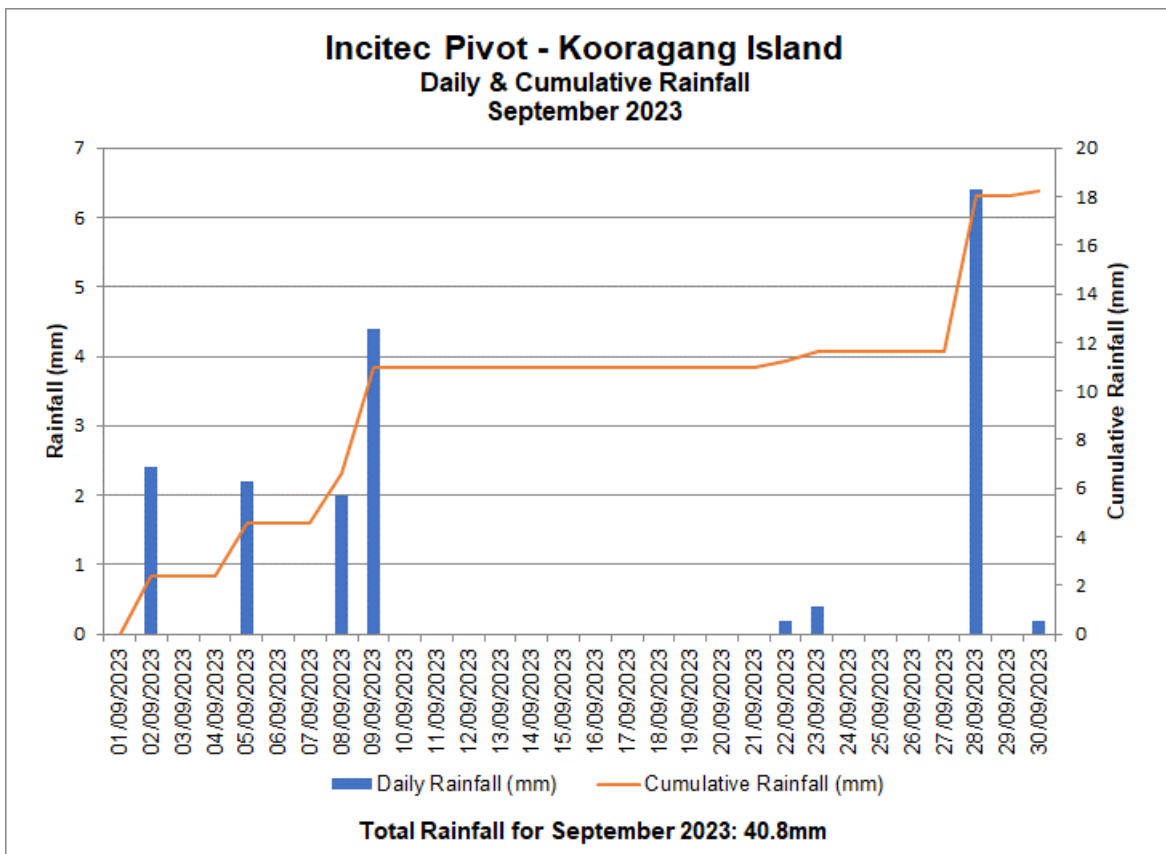
#### 3.2 CENTRAL DRAIN WATER ANALYSIS RESULTS

No composite samples were collected during September.

### 4 RAINFALL AND FLOW DATA

No flow rate information has been provided to RCA; however, it is understood that flow data is currently being recorded at the Central stormwater drainage line.

A rainfall gauge independent to the ISCO samplers is also located on site. Data was attempted to be downloaded on multiple occasions in October and November however none was successful; the last recording was approximately midday 1<sup>st</sup> September 2023. RCA have therefore utilised the data from the Bureau of Meteorology Nobbys station as shown in **Figure 1** below.



**Figure 1** September 2023 Rainfall

**5 BENEFICIAL REUSE SAMPLING**

One (1) sample was collected from the wheel wash during September 2023. Results are shown in **Table 2**. Laboratory report sheets are attached in **Appendix A** and **Appendix B**.

**Table 2**      *Reuse Analysis Results*

Sample Location		Wheel Wash
Date	Units	01/09/2023
Time		11:45
pH	pH units	7.09
Nitrite as N	mg/L	0.2
Nitrate as N	mg/L	2.68
TKN	mg/L	1140
Total Nitrogen	mg/L	1140
Total Phosphorus	mg/L	178
Arsenic (dissolved)	mg/L	0.02
Cadmium (dissolved)	mg/L	0.0004
Copper (dissolved)	mg/L	0.023
Lead (dissolved)	mg/L	<0.001
Molybdenum (dissolved)	mg/L	0.027
Nickel (dissolved)	mg/L	0.025
Zinc (dissolved)	mg/L	0.037
Mercury (dissolved)	mg/L	<0.0001
Chromium (total)	mg/L	0.01

## 6 LIMITATIONS

This report has been prepared for Incitec Pivot 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 Incitec Pivot. The report may not contain sufficient information for purposes of other uses or for parties other than Incitec Pivot. 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.

Yours faithfully

**RCA AUSTRALIA**



Muhammad Hayyat  
Environmental Engineer  
MEng (Env), BEng

# Appendix A

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Internal NATA Analysis Reports

Incitec Pivot Limited  
PO Box 148  
MAYFIELD NSW 2304

**Project:** RCA ref 6919-1371/0  
**Date:** 18/09/2023  
**Client reference:** Wheel Wash  
**Received date:** 1/09/2023  
**Client order number:** 45987323

**Number of samples:** 1  
**Testing commenced:** 1/09/2023

## CERTIFICATE OF ANALYSIS

### 1 ANALYTICAL TEST METHODS

ANALYSIS	METHOD	UNITS	ANALYSING LABORATORY	NATA ANALYSIS / NON NATA	Measurement of Uncertainty Coverage Factor 2
pH	ENV-LAB006*	pH	RCA Laboratories - Environmental	NATA	±0.54

\* The analytical procedures used by RCA Laboratories - Environmental are based on established internationally recognised procedures such as APHA and Australian Standards.



## 2 RESULTS

ANALYSIS	UNITS	Wheel Wash
<b>Water</b>		
Sample Number	-	09236919001
Date Sampled	-	1/09/2023
Sampled By	-	SK
pH Value	pH unit	7.09

## 3 QUALITY CONTROL RESULTS

### *Water Quality Control Sample Results*

DATE	ANALYSIS	METHOD	UNITS	QUALITY CONTROL STANDARD VALUE	QUALITY CONTROL ACCEPTANCE CRITERIA	QUALITY CONTROL STANDARD RESULT
1/09/2023	pH	ENV-LAB006	pH	7.00	6.95 - 7.05	7.02

### *Water Duplicate Analysis Results*

SAMPLE NUMBER	DATE	ANALYSIS	METHOD	UNITS	LOR	SAMPLE RESULT	SAMPLE DUPLICATE RESULT
09237092001	1/09/2023	pH	ENV-LAB006	pH	-	9.24	9.35

Please contact the undersigned if you have any queries.

Yours sincerely



Laura Schofield  
Environmental Laboratory Manager  
Robert Carr & Associates Pty Ltd Trading as  
RCA Laboratories -Environmental  
Approved Signatory

## RCA Internal Quality Review

### General

1. Laboratory QC results for Method Blanks, Duplicates and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. RCA QC Acceptance / Rejection Criteria are available on request.
3. Proficiency Trial results are available on request.
4. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
5. When individual results are qualified in the body of a report, refer to the qualifier descriptions that follow.
6. Samples were analysed on an 'as received' basis.
7. Sampled dates in this report are those listed on the COC or sample jars; if no sample dates are noted, the date the samples are received at the laboratory have been used.
8. All soil results are reported on a dry basis, unless otherwise stated. (ACID SULPHATE SOILS)
9. This report replaces any interim results previously issued.

### Holding Times.

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

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

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

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

### QC - ACCEPTANCE CRITERIA

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

Results <10 times the LOR: No Limit

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

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

### QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

### Glossary

#### UNITS

mg/kg: milligrams per Kilogram

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Units

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

mg/L: milligrams per Litre

#### TERMS

**Dry** Where moisture has been determined on a solid sample the result is expressed on a dry basis.

**LOR** Limit of Reporting.

**RPD** Relative Percent Difference between two Duplicate pieces of analysis can be obtained upon request.

**QCS** Quality Control Sample - reported as value recovery

**Method Blank** In the case of solid samples these are performed on laboratory certified clean sands.

In the case of water samples these are performed on de-ionised water.

**Duplicate** A second piece of analysis from the same sample and reported in the same units as the result to show comparison.

**Batch Duplicate** A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

**USEPA** United States Environment Protection Authority

**APHA** American Public Health Association

**COC** Chain of Custody

**CP** Client Parent - QC was performed on samples pertaining to this report

#### IS insufficient sample for analysis

**NCP** Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

< indicates less than

> Indicates greater than

**ND** Not Detected

Client Name: Incitec  
Client Site: Kooragang Island

Contact Name: Anthony Peters  
Phone Number: 02 4923 5466

Email Report To: enviro@rca.com.au  
Project Manager: Fiona Brooker

Turnaround Required:  Urgent  
 Standard (5 Day)

Date Required: \_\_\_\_\_

Expected Reporting Date: \_\_\_\_\_  
(Laboratory Use Only)

**ANALYSIS REQUIRED**

Page of

RCA Job Number: 6919																								
<b>SAMPLE INFORMATION</b>																								
RCA Laboratories Environmental Sample Number	Client ID / Description	Date	Matrix	Total Samples	PH	External Analysis																		
09236919001	Wheel Wash	1/09/23	w	1	x	x																		
RELINQUISHED BY					RECEIVED BY					Laboratory use only (circle appropriate)														
Name: S King <i>S-K</i>					Name: <i>[Signature]</i>					Date: 1/9/23					Received in good condition: Yes No									
Of: RCALE					Of: RCALE					Time: 18:00					Time: 13:00					Chilled: Yes No				

# Appendix B

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## External Laboratory Reports



## CERTIFICATE OF ANALYSIS

**Work Order** : **WN2310696**  
**Client** : **ROBERT CARR & ASSOCIATES P/L**  
**Contact** : LAURA SCHOFIELD  
**Address** : PO BOX 175  
CARRINGTON NSW, AUSTRALIA 2294  
**Telephone** : +61 2 4902 9200  
**Project** : 6919 Wheel Wash  
**Order number** : ----  
**C-O-C number** : ----  
**Sampler** : S King  
**Site** : ----  
**Quote number** : WN/088/16  
**No. of samples received** : 1  
**No. of samples analysed** : 1

**Page** : 1 of 3  
**Laboratory** : ALS Water - Newcastle  
**Contact** : Andrea Swan  
**Address** : 5/585 Maitland Road Newcastle West NSW Australia 2304  
**Telephone** : +61 2 4014 2500  
**Date Samples Received** : 04-Sep-2023 12:40  
**Date Analysis Commenced** : 06-Sep-2023  
**Issue Date** : 12-Sep-2023 14:15



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

### Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Christopher Cameron	Laboratory Technician	Chemistry, Newcastle West, NSW
Ruby Buller	Laboratory Technician	Chemistry, Newcastle West, 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.

- EG020A-F, EG020A-T & EG035F conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	09236919001	----	----	----	----
Sampling date / time				01-Sep-2023 00:00	----	----	----	----	
Compound	CAS Number	LOR	Unit	WN2310696-001	-----	-----	-----	-----	
				Result	---	---	---	---	
<b>EG020F: Dissolved Metals by ICP-MS</b>									
Arsenic	7440-38-2	0.001	mg/L	0.020	----	----	----	----	
Cadmium	7440-43-9	0.0001	mg/L	0.0004	----	----	----	----	
Copper	7440-50-8	0.001	mg/L	0.023	----	----	----	----	
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----	
Molybdenum	7439-98-7	0.001	mg/L	0.027	----	----	----	----	
Nickel	7440-02-0	0.001	mg/L	0.025	----	----	----	----	
Zinc	7440-66-6	0.005	mg/L	0.037	----	----	----	----	
<b>EG020T: Total Metals by ICP-MS</b>									
Chromium	7440-47-3	0.001	mg/L	0.010	----	----	----	----	
<b>EG035F: Dissolved Mercury by FIMS</b>									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----	
<b>EK057A: Nitrite as N</b>									
Nitrite as N	14797-65-0	0.05	mg/L	0.20	----	----	----	----	
<b>EK058A: Nitrate as N</b>									
Nitrate as N	14797-55-8	0.05	mg/L	2.68	----	----	----	----	
<b>EK059A: Nitrite and Nitrate as N (NOx)</b>									
Nitrite + Nitrate as N	----	0.05	mg/L	2.88	----	----	----	----	
<b>EK061A: Total Kjeldahl Nitrogen as N</b>									
Total Kjeldahl Nitrogen as N	----	0.2	mg/L	1140	----	----	----	----	
<b>EK062A: Total Nitrogen as N</b>									
Total Nitrogen as N	----	0.1	mg/L	1140	----	----	----	----	
<b>EK067A: Total Phosphorus as P</b>									
Total Phosphorus as P	----	0.05	mg/L	178	----	----	----	----	

## Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) EG035F: Dissolved Mercury by FIMS

(WATER) EG020F: Dissolved Metals by ICP-MS

(WATER) EG020T: Total Metals by ICP-MS



## QUALITY CONTROL REPORT

Work Order	: <b>WN2310696</b>	Page	: 1 of 4
Client	: <b>ROBERT CARR &amp; ASSOCIATES P/L</b>	Laboratory	: ALS Water - Newcastle
Contact	: LAURA SCHOFIELD	Contact	: Andrea Swan
Address	: PO BOX 175 CARRINGTON NSW, AUSTRALIA 2294	Address	: 5/585 Maitland Road Newcastle West NSW Australia 2304
Telephone	: +61 2 4902 9200	Telephone	: +61 2 4014 2500
Project	: 6919 Wheel Wash	Date Samples Received	: 04-Sep-2023
Order number	: ----	Date Analysis Commenced	: 06-Sep-2023
C-O-C number	: ----	Issue Date	: 12-Sep-2023
Sampler	: S King		
Site	: ----		
Quote number	: WN/088/16		
No. of samples received	: 1		
No. of samples analysed	: 1		



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
Christopher Cameron	Laboratory Technician	Chemistry, Newcastle West, NSW
Ruby Buller	Laboratory Technician	Chemistry, Newcastle West, NSW



## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

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

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

## Laboratory Duplicate (DUP) Report

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

Sub-Matrix: WATER

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 5280504)</b>									
ES2330166-002	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: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.011	0.006	59.3	No Limit
<b>EG020T: Total Metals by ICP-MS (QC Lot: 5280560)</b>									
EW2303903-001	Anonymous	EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EW2303911-001	Anonymous	EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 5280501)</b>									
ES2329860-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EK057A: Nitrite as N (QC Lot: 5277517)</b>									
WN2310391-001	Anonymous	EK057A: Nitrite as N	14797-65-0	0.03	mg/L	<0.03	<0.03	0.0	No Limit
<b>EK059A: Nitrite and Nitrate as N (NO<sub>x</sub>) (QC Lot: 5277515)</b>									
WN2310391-001	Anonymous	EK059A: Nitrite + Nitrate as N	----	0.05	mg/L	2.27	2.20	3.3	0% - 20%
<b>EK062A: Total Nitrogen as N (QC Lot: 5285377)</b>									
WN2310402-001	Anonymous	EK062A: Total Nitrogen as N	----	0.1	mg/L	6.8	6.8	0.0	0% - 20%
WN2310690-015	Anonymous	EK062A: Total Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.0	No Limit
<b>EK067A: Total Phosphorus as P (QC Lot: 5282972)</b>									
WN2310690-022	Anonymous	EK067A: Total Phosphorus as P	----	0.05	mg/L	<0.05	<0.05	0.0	No Limit
WN2310734-001	Anonymous	EK067A: Total Phosphorus as P	----	0.05	mg/L	3.38	3.42	1.4	0% - 20%



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

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

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 5280504)</b>								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.5	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.5	84.0	110
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.2	83.0	111
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	101	79.0	113
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.5	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.0	81.0	117
<b>EG020T: Total Metals by ICP-MS (QCLot: 5280560)</b>								
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	107	86.0	116
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 5280501)</b>								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.3	83.0	105
<b>EK057A: Nitrite as N (QCLot: 5277517)</b>								
EK057A: Nitrite as N	14797-65-0	0.03	mg/L	<0.03	1 mg/L	102	90.0	110
<b>EK059A: Nitrite and Nitrate as N (NOx) (QCLot: 5277515)</b>								
EK059A: Nitrite + Nitrate as N	----	0.05	mg/L	<0.05	2 mg/L	102	90.0	110
<b>EK062A: Total Nitrogen as N (QCLot: 5285377)</b>								
EK062A: Total Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	104	90.0	110
<b>EK067A: Total Phosphorus as P (QCLot: 5282972)</b>								
EK067A: Total Phosphorus as P	----	0.05	mg/L	<0.05	5 mg/L	100	90.0	110

### 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	Spike Recovery (%) MS	Acceptable Limits (%) Low High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 5280504)</b>							
ES2330166-003	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	96.4	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	97.3	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	99.7	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	93.7	70.0	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 5280504) - continued</b>							
ES2330166-003	Anonymous	EG020A-F: Nickel	7440-02-0	1 mg/L	97.2	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	99.0	70.0	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 5280560)</b>							
ES2330166-001	Anonymous	EG020A-T: Chromium	7440-47-3	1 mg/L	99.2	70.0	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 5280501)</b>							
ES2329859-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	86.8	70.0	130
<b>EK057A: Nitrite as N (QCLot: 5277517)</b>							
WN2310728-001	Anonymous	EK057A: Nitrite as N	14797-65-0	1 mg/L	102	80.0	120
<b>EK059A: Nitrite and Nitrate as N (NO<sub>x</sub>) (QCLot: 5277515)</b>							
WN2310728-001	Anonymous	EK059A: Nitrite + Nitrate as N	----	2 mg/L	103	80.0	120
<b>EK062A: Total Nitrogen as N (QCLot: 5285377)</b>							
WN2310404-005	Anonymous	EK062A: Total Nitrogen as N	----	20 mg/L	99.3	80.0	120
<b>EK067A: Total Phosphorus as P (QCLot: 5282972)</b>							
WN2310690-025	Anonymous	EK067A: Total Phosphorus as P	----	5 mg/L	# 64.0	80.0	120



## QA/QC Compliance Assessment to assist with Quality Review

Work Order	: <b>WN2310696</b>	Page	: 1 of 6
Client	: <b>ROBERT CARR &amp; ASSOCIATES P/L</b>	Laboratory	: ALS Water - Newcastle
Contact	: LAURA SCHOFIELD	Telephone	: +61 2 4014 2500
Project	: 6919 Wheel Wash	Date Samples Received	: 04-Sep-2023
Site	: ----	Issue Date	: 12-Sep-2023
Sampler	: S King	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

- 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
<b>Matrix Spike (MS) Recoveries</b>							
EK067A: Total Phosphorus as P	WN2310690--025	Anonymous	Total Phosphorus as P	----	64.0 %	80.0-120%	Recovery less than lower data quality objective

### Outliers : Analysis Holding Time Compliance

Matrix: WATER

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
<b>EK057A: Nitrite as N</b>						
Clear Plastic Bottle - Natural 09236919001	----	----	----	06-Sep-2023	03-Sep-2023	3

### 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
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) 09236919001	01-Sep-2023	----	----	----	06-Sep-2023	28-Feb-2024	✓
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) 09236919001	01-Sep-2023	06-Sep-2023	28-Feb-2024	✓	06-Sep-2023	28-Feb-2024	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) 09236919001	01-Sep-2023	----	----	----	08-Sep-2023	29-Sep-2023	✓
<b>EK057A: Nitrite as N</b>							
Clear Plastic Bottle - Natural (EK057A) 09236919001	01-Sep-2023	----	----	----	06-Sep-2023	03-Sep-2023	*
<b>EK059A: Nitrite and Nitrate as N (NOx)</b>							
Clear Plastic Bottle - Sulfuric Acid (EK059A) 09236919001	01-Sep-2023	----	----	----	06-Sep-2023	29-Sep-2023	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EK062A: Total Nitrogen as N</b>							
Clear Plastic Bottle - Sulfuric Acid (EK062A) 09236919001	01-Sep-2023	08-Sep-2023	29-Sep-2023	✔	11-Sep-2023	29-Sep-2023	✔
<b>EK067A: Total Phosphorus as P</b>							
Clear Plastic Bottle - Sulfuric Acid (EK067A) 09236919001	01-Sep-2023	08-Sep-2023	29-Sep-2023	✔	08-Sep-2023	29-Sep-2023	✔



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	2	50.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)	EK059A	1	6	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N	EK057A	1	3	33.33	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	7	28.57	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Nitrogen as N	EK062A	2	11	18.18	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P	EK067A	2	16	12.50	10.00	✔	NEPM 2013 B3 & ALS QC Standard
<b>Laboratory Control Samples (LCS)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)	EK059A	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N	EK057A	1	3	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Nitrogen as N	EK062A	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P	EK067A	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard
<b>Method Blanks (MB)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)	EK059A	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N	EK057A	1	3	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Nitrogen as N	EK062A	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P	EK067A	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard
<b>Matrix Spikes (MS)</b>							
Dissolved Mercury by FIMS	EG035F	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)	EK059A	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N	EK057A	1	3	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Nitrogen as N	EK062A	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P	EK067A	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard



## Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Nitrite as N	EK057A	WATER	In house: referenced to APHA 4500 - NO <sub>3</sub> I (no reduction). Nitrite (NO <sub>2</sub> <sup>-</sup> ) is determined through the formation of a reddish purple azo dye produced at pH 2.0 to 2.5 by coupling diazotised acid with N-(1-naphthyl)-ethylenediamine dihydrochloride which is measured at 520 nm.
Nitrate as N	EK058A	WATER	In house: referenced to APHA 4500 - NO <sub>3</sub> I. This automated procedure for the determination of TON (NO <sub>2</sub> <sup>-</sup> + NO <sub>3</sub> <sup>-</sup> ) utilises the procedure whereby (NO <sub>3</sub> <sup>-</sup> ) is reduced to nitrite (NO <sub>2</sub> <sup>-</sup> ) at a pH 7.5 in a copper-cadmium reductor cell. The NO <sub>2</sub> <sup>-</sup> reduced from NO <sub>3</sub> <sup>-</sup> plus any free NO <sub>2</sub> <sup>-</sup> present reacts under acidic conditions with sulfanilamide to form a diazo compound that then couples with N-(1-naphthyl)-ethylenediamine dihydrochloride to form a reddish purple azo dye which is measured at 520 nm.
Nitrite and Nitrate as N (NO <sub>x</sub> )	EK059A	WATER	In house: referenced to APHA 4500 - NO <sub>3</sub> I. This automated procedure for the determination of TON (NO <sub>2</sub> <sup>-</sup> + NO <sub>3</sub> <sup>-</sup> ) utilises the procedure whereby (NO <sub>3</sub> <sup>-</sup> ) is reduced to nitrite (NO <sub>2</sub> <sup>-</sup> ) at a pH 7.5 in a copper-cadmium reductor cell. The NO <sub>2</sub> <sup>-</sup> reduced from NO <sub>3</sub> <sup>-</sup> plus any free NO <sub>2</sub> <sup>-</sup> present reacts under acidic conditions with sulfanilamide to form a diazo compound that then couples with N-(1-naphthyl)-ethylenediamine dihydrochloride to form a reddish purple azo dye which is measured at 520 nm.
Total Kjeldahl Nitrogen as N	EK061A	WATER	In house 6. TKN is calculated by difference from Total Nitrogen and NO <sub>x</sub> . Contributing method parameters are determined by FIA
Total Nitrogen as N	EK062A	WATER	In house 13. The persulfate method determines Total Nitrogen by oxidation of all nitrogenous compounds to nitrate. Alkaline oxidation at 100 to 1100C using an autoclave converts organic and inorganic nitrogen to nitrate. Total Nitrogen is determined by analysing the nitrate in the digestate using Automated Cadmium reduction method.

Page : 6 of 6  
 Work Order : WN2310696  
 Client : ROBERT CARR & ASSOCIATES P/L  
 Project : 6919 Wheel Wash



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Total Phosphorus as P	EK067A	WATER	In house: referenced to APHA 4500 - P H. The Total Phosphorus content of a sample includes all the orthophosphates and condensed phosphates, both soluble insoluble and the organic and inorganic species of Phosphorus in the sample. The more complex forms of phosphorus must be converted to the simple orthophosphate species before analysis is possible and this is achieved by digesting the sample with ammonium persulphate and sulphuric acid.
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Basic Persulfate Digestion for TN with FIA finish.	EK062-PA	WATER	In house: Referenced to APHA 24500 P - J.
Acid Persulfate Digestion for TP with FIA finish.	EK067-PA	WATER	#
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

# CHAIN OF CUSTODY

*ALS Laboratory: please tick →*

CLIENT: RCA (ROBCAR)	TURNAROUND REQUIREMENTS : <small>(Standard TAT may be longer for some tests e.g., Ultra Trace Organics)</small>	FOR LABORATORY USE ONLY (Circle)
OFFICE: Carrington	<input type="checkbox"/> Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
PROJECT: 6919 Wheel Wash	ALS QUOTE NO.: WN/088/16	Free ice / frozen ice bricks present upon receipt? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	Random Sample Temperature on Receipt: 8.0 °C
PROJECT MANAGER: Laura S	CONTACT PH: 0478548630	Other comment:
SAMPLER: S King	SAMPLER MOBILE: 0467053540	RECEIVED BY: JN 4.9.23
COC Emailed to ALS? ( NO)	EDD FORMAT (or default):	DATE/TIME: 1240
Email Reports to : lauras@rca.com.au; administrator@rca.com.au; enviro@rca.com.au	RELINQUISHED BY: S King	RECEIVED BY: JN 4.9.23
Email Invoice to : as above	DATE/TIME: 1/9/23	DATE/TIME: 1240

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

ALS USE ONLY	SAMPLE DETAILS <small>MATRIX: Solid(S) Water(W)</small>			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) <small>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).</small>						Additional Information	
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes below)</small>	TOTAL BOTTLES	NT-11 (P, TON, TKN, NOX)	NT-4 (Nitrate + Nitrite)	8 Metals Dissolved (As, Cd, Cu, Ni, Pb, Zn, Hg, Molybdenum)	EG020T - Total Chromium				
	09236919001	1/09/2023 0:00	W	1 x 500ml P, 1 x 125ml SP, 1 x 60ml N, 1 x 60ml N (field filtered)	4	x	x	x	x				TKN concentration likely to be greater than 5000mg/L.
													Wheel Wash
<b>TOTAL</b>													

Environmental Division  
Newcastle - Water  
Work Order Reference  
**WN2310696**



Telephone : + 61 2 4014 2500

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.





## SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **WN2310696**

Client	: ROBERT CARR & ASSOCIATES P/L	Laboratory	: ALS Water - Newcastle
Contact	: LAURA SCHOFIELD	Contact	: Andrea Swan
Address	: PO BOX 175 CARRINGTON NSW, AUSTRALIA 2294	Address	: 5/585 Maitland Road Newcastle West NSW Australia 2304
E-mail	: lauras@rca.com.au	E-mail	: Andrea.Swan@ALSGlobal.com
Telephone	: +61 2 4902 9200	Telephone	: +61 2 4014 2500
Facsimile	: +61 2 4902 9299	Facsimile	: +61 2 4967 7382
Project	: 6919 Wheel Wash	Page	: 1 of 3
Order number	: ----	Quote number	: WN2016ROBCAR0006 (WN/088/16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: S King		

### Dates

Date Samples Received	: 04-Sep-2023 12:40	Issue Date	: 04-Sep-2023
Client Requested Due Date	: 11-Sep-2023	Scheduled Reporting Date	: <b>11-Sep-2023</b>

### Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 8.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

### General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- EG020A-F, EG020A-T & EG035F conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.
- 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.
- **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 Disposal - Aqueous Chemistry (3 weeks), Aqueous Microbiological (1 week), Solid (2 months ± 1 week) from receipt of samples.



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG020T Total Metals by ICP/MS (including digestion)	WATER - EG035F Dissolved Mercury	WATER - NT-04.WN Nitrite and Nitrate	WATER - NT-11.WN Total Nitrogen and Total Phosphorus
WN2310696-001	01-Sep-2023 00:00	09236919001	✓	✓	✓	✓	✓

### Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

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

Method	Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
					Date	Evaluation	Date	Evaluation
<b>EK057A: Nitrite as N</b>								
	09236919001	Clear Plastic Bottle - Natural	----	03-Sep-2023	04-Sep-2023	✖	----	----



## 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 (WRG) (SRN)	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
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### 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

### LAURA SCHOFIELD

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

## Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) EG035F: Dissolved Mercury by FIMS

(WATER) EG020F: Dissolved Metals by ICP-MS

(WATER) EG020T: Total Metals by ICP-MS