

CERTIFICATE OF ANALYSIS

Work Order : **EW1903421**
Client : **WINGECARRIBEE SHIRE COUNCIL**
Contact : MR CHRIS MURPHY
Address : PO BOX 141
 MOSSVALE NSW
 AUSTRALIA
Telephone : ----
Project : RRC Quarterly
Order number : ----
C-O-C number : ----
Sampler : Robert DaLio
Site : ----
Quote number : WO/067/12
No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 5
Laboratory : Environmental Division NSW South Coast
Contact : Tyler Cachia
Address : 1/19 Ralph Black Dr, North Wollongong 2500
 4/13 Geary Pl, North Nowra 2541
 Australia NSW Australia
Telephone : +61 2 8784 8555
Date Samples Received : 08-Aug-2019 15:00
Date Analysis Commenced : 08-Aug-2019
Issue Date : 15-Aug-2019 16:31



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong, NSW



General Comments

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

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

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

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

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

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

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

- Sampling and sample data supplied by ALS Wollongong.
- Sampling completed as per EN/67.11 Groundwater Sampling.
- Field tests completed on day of sampling/receipt.
- Sampling Completed as per EN/67.4 Lakes and Reservoirs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				Point 1 MW1B (Front Gate)	Point 2 MW06 (Car Park)	Point 3 MW7 (South of Pond)	Point 5 SW01 (Upstream Stormwater)	Point 6 SW02 (Holding Pond)
Client sampling date / time				08-Aug-2019 00:00	08-Aug-2019 00:00	08-Aug-2019 00:00	08-Aug-2019 00:00	08-Aug-2019 00:00
Compound	CAS Number	LOR	Unit	EW1903421-001	EW1903421-002	EW1903421-003	EW1903421-005	EW1903421-006
				Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	----	0.1	pH Unit	6.3	4.9	4.7	----	8.4
EA010FD: Field Conductivity								
Electrical Conductivity (Non Compensated)	----	1	µS/cm	6250	310	2410	----	644
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	----	10	mg/L	4090	218	1380	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	----	----	----	----	16
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	270	21	<1	----	----
Total Alkalinity as CaCO3	----	1	mg/L	270	21	<1	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	70	31	<1	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	1940	55	885	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	290	<1	7	----	----
Magnesium	7439-95-4	1	mg/L	205	2	38	----	----
Sodium	7440-23-5	1	mg/L	711	54	406	----	----
Potassium	7440-09-7	1	mg/L	16	<1	1	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.06	0.09	0.01	----	0.83
EN055: Ionic Balance								
∅ Total Anions	----	0.01	meq/L	61.6	2.62	25.0	----	----
∅ Total Cations	----	0.01	meq/L	62.7	2.51	21.2	----	----
∅ Ionic Balance	----	0.01	%	0.89	----	8.24	----	----
EN67 PK: Field Tests								
Field Observations	----	0.01	--	----	----	----	DRY	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	7	10	4	----	31



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				Point 1 MW1B (Front Gate)	Point 2 MW06 (Car Park)	Point 3 MW7 (South of Pond)	Point 5 SW01 (Upstream Stormwater)	Point 6 SW02 (Holding Pond)
Client sampling date / time				08-Aug-2019 00:00	08-Aug-2019 00:00	08-Aug-2019 00:00	08-Aug-2019 00:00	08-Aug-2019 00:00
Compound	CAS Number	LOR	Unit	EW1903421-001	EW1903421-002	EW1903421-003	EW1903421-005	EW1903421-006
				Result	Result	Result	Result	Result
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	----	----	----	----	12
FWI-EN/001: Groundwater Sampling - Depth								
Depth	----	0.01	m	4.98	2.08	2.02	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				Point 7 SW03 (Polishing Pond)	----	----	----	----
Client sampling date / time				08-Aug-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1903421-007	-----	-----	-----	-----
				Result	----	----	----	----
EA005FD: Field pH								
pH	----	0.1	pH Unit	9.0	----	----	----	----
EA010FD: Field Conductivity								
Electrical Conductivity (Non Compensated)	----	1	µS/cm	3710	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	41	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	79.0	----	----	----	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	279	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	30	----	----	----	----