

CERTIFICATE OF ANALYSIS

Work Order : **EW1803163**
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 : Glenn Davies
Address : 1/19 Ralph Black Dr, North Wollongong 2500
 4/13 Geary Pl, North Nowra 2541
 Australia NSW Australia
Telephone : 02 42253125
Date Samples Received : 07-Aug-2018 13:56
Date Analysis Commenced : 08-Aug-2018
Issue Date : 16-Aug-2018 08:34



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
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, 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 FWI-EN001 Groundwater Sampling.
- Sampling completed as per FWI-EN002 Surface Water Sampling.
- Field tests completed on day of sampling/receipt.
- 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-2018 11:50	08-Aug-2018 11:20	08-Aug-2018 12:05	08-Aug-2018 11:45	08-Aug-2018 12:25	
Compound	CAS Number	LOR	Unit	EW1803163-001	EW1803163-002	EW1803163-003	EW1803163-005	EW1803163-006	
				Result	Result	Result	Result	Result	
EA005FD: Field pH									
pH	----	0.1	pH Unit	6.7	4.7	5.6	----	8.5	
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	6180	362	2920	----	988	
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L	3940	212	1160	----	----	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	----	----	----	----	36	
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	381	<1	21	----	----	
Total Alkalinity as CaCO3	----	1	mg/L	381	<1	21	----	----	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	101	33	1	----	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	1410	61	803	----	----	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	277	<1	14	----	----	
Magnesium	7439-95-4	1	mg/L	193	2	41	----	----	
Sodium	7440-23-5	1	mg/L	643	59	425	----	----	
Potassium	7440-09-7	1	mg/L	15	<1	1	----	----	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.08	0.02	----	4.89	
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L	49.5	2.41	23.1	----	----	
Total Cations	----	0.01	meq/L	58.0	2.73	22.6	----	----	
Ionic Balance	----	0.01	%	7.97	----	1.11	----	----	
EN67 PK: Field Tests									
Field Observations	----	0.01	--	----	----	----	DRY	----	
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L	11	14	4	----	33	



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-2018 11:50	08-Aug-2018 11:20	08-Aug-2018 12:05	08-Aug-2018 11:45	08-Aug-2018 12:25
Compound	CAS Number	LOR	Unit	EW1803163-001	EW1803163-002	EW1803163-003	EW1803163-005	EW1803163-006
				Result	Result	Result	Result	Result
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	----	----	----	----	8
FWI-EN/001: Groundwater Sampling - Depth								
Depth	----	0.01	m	4.49	1.85	2.76	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	Point 7 SW03 (Polishing Pond)	----	----	----	----
Client sampling date / time			08-Aug-2018 12:15	----	----	----	----	
Compound	CAS Number	LOR	Unit	EW1803163-007	-----	-----	-----	-----
				Result	----	----	----	----
EA005FD: Field pH								
pH	----	0.1	pH Unit	8.5	----	----	----	----
EA010FD: Field Conductivity								
Electrical Conductivity (Non Compensated)	----	1	µS/cm	837	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	79	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	1.05	----	----	----	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	16	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	7	----	----	----	----