

CERTIFICATE OF ANALYSIS

Work Order : **EW1603122**
Client : **WINGECARRIBEE SHIRE COUNCIL**
Contact : MR Scott McAllan
Address : PO BOX 141
 MOSSVALE NSW
 AUSTRALIA
Telephone : ----
Project : RRC Quarterly
Order number : ----
C-O-C number : ----
Sampler : Craig Wilson
Site : ----
Quote number : ----
No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 6
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
Telephone : 02 42253125
Date Samples Received : 18-Aug-2016 16:30
Date Analysis Commenced : 19-Aug-2016
Issue Date : 30-Aug-2016 16:37



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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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
Robert DaLio	Sampler	Laboratory - Wollongong



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
∅ = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EN055: Ionic Balance out of acceptable limits due to analytes not quantified in this report.
- 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.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	EPA 1	EPA 2	EPA 3	EPA 5	EPA 6
Client sampling date / time				19-Aug-2016 12:15	19-Aug-2016 12:00	19-Aug-2016 11:30	19-Aug-2016 11:20	19-Aug-2016 11:45	
Compound	CAS Number	LOR	Unit	EW1603122-001	EW1603122-002	EW1603122-003	EW1603122-004	EW1603122-005	
				Result	Result	Result	Result	Result	
EA005FD: Field pH									
pH	----	0.1	pH Unit	4.2	4.0	4.7	----	7.0	
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	3560	505	3060	----	3410	
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	----	3630	
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L	2860	334	1980	----	----	
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	<1	<1	2	----	----	
Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	2	----	----	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	195	<1	<1	----	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	675	181	950	----	----	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	144	<1	9	----	----	
Magnesium	7439-95-4	1	mg/L	97	8	47	----	----	
Sodium	7440-23-5	1	mg/L	478	84	595	----	----	
Potassium	7440-09-7	1	mg/L	27	<1	1	----	----	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.50	0.09	<0.01	----	44.5	
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L	23.1	5.10	26.8	----	----	
Total Cations	----	0.01	meq/L	36.6	4.31	30.2	----	----	
Ionic Balance	----	0.01	%	22.7	8.44	5.92	----	----	
EN67 PK: Field Tests									
Field Observations	----	0.01	--	----	----	----	DRY	----	
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L	21	6	5	----	1100	
EP030: Biochemical Oxygen Demand (BOD)									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	EPA 1	EPA 2	EPA 3	EPA 5	EPA 6
Client sampling date / time					19-Aug-2016 12:15	19-Aug-2016 12:00	19-Aug-2016 11:30	19-Aug-2016 11:20	19-Aug-2016 11:45
Compound	CAS Number	LOR	Unit		EW1603122-001	EW1603122-002	EW1603122-003	EW1603122-004	EW1603122-005
					Result	Result	Result	Result	Result
EP030: Biochemical Oxygen Demand (BOD) - Continued									
Biochemical Oxygen Demand	----	2	mg/L		----	----	----	----	1040
FWI-EN/001: Groundwater Sampling - Depth									
Depth	----	0.01	m		2.74	1.92	2.08	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID			EPA 7	----	----	----	----
Client sampling date / time		19-Aug-2016 11:40			----	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1603122-006	-----	-----	-----	-----	-----
				Result	----	----	----	----	----
EA005FD: Field pH									
pH	----	0.1	pH Unit	6.4	----	----	----	----	----
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	3960	----	----	----	----	----
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	----	10	mg/L	4000	----	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	----	----	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	----	----	----	----	----	----
Magnesium	7439-95-4	1	mg/L	----	----	----	----	----	----
Sodium	7440-23-5	1	mg/L	----	----	----	----	----	----
Potassium	7440-09-7	1	mg/L	----	----	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	52.3	----	----	----	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L	----	----	----	----	----	----
Total Cations	----	0.01	meq/L	----	----	----	----	----	----
Ionic Balance	----	0.01	%	----	----	----	----	----	----
EN67 PK: Field Tests									
Field Observations	----	0.01	--	----	----	----	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L	1330	----	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	EPA 7	----	----	----	----
			Client sampling date / time	19-Aug-2016 11:40	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1603122-006	-----	-----	-----	-----
				Result	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD) - Continued								
Biochemical Oxygen Demand	----	2	mg/L	1270	----	----	----	----
FWI-EN/001: Groundwater Sampling - Depth								
Depth	----	0.01	m	----	----	----	----	----