ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EW1600648**	Page	: 1 of 4
Client	: **WINGECARRIBEE SHIRE COUNCIL**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR Scott McAllan	Contact	: Glenn Davies
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Project	: RRC Quarterly	QC Level	: NEPM 2013 B3 & ALS QC Standard
Order number	: ----	Date Samples Received	: 18-Feb-2016 15:30
C-O-C number	: ----	Date Analysis Commenced	: 18-Feb-2016
Sampler	: Glenn Davies	Issue Date	: 24-Feb-2016 16:33
Site	: ----		
		No. of samples received	: 6
Quote number	: ----	No. of samples analysed	: 6

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ashesh Patel	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Dian Dao		Sydney Inorganics, Smithfield, NSW
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong
Shobhna Chandra	Metals Coordinator	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.

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.

- EA015 TDS, result has been confirmed by re-analysis.
- 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	18-Feb-2016 13:30	18-Feb-2016 13:20	18-Feb-2016 13:10	18-Feb-2016 12:41	18-Feb-2016 12:45
Compound	CAS Number	LOR	Unit		EW1600648-001	EW1600648-002	EW1600648-003	EW1600648-004	EW1600648-005
					Result	Result	Result	Result	Result
EA005FD: Field pH									
pH	----	0.1	pH Unit		5.0	4.7	5.0	8.6	8.4
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm		3750	520	3140	1530	520
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	----	10	mg/L		2750	388	2080	1120	333
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		7	5	3	----	----
Total Alkalinity as CaCO3	----	1	mg/L		7	5	3	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		185	1	<1	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		721	172	994	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		171	4	15	----	----
Magnesium	7439-95-4	1	mg/L		107	8	57	----	----
Sodium	7440-23-5	1	mg/L		461	92	570	----	----
Potassium	7440-09-7	1	mg/L		25	<1	2	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		0.23	0.20	0.02	0.06	0.02
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		24	<1	2	26	14
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		----	----	----	<2	3
FWI-EN/001: Groundwater Sampling - Depth									
Depth	----	0.01	m		3.36	2.30	2.38	1.50	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	EPA 7	----	----	----	----
			Client sampling date / time	18-Feb-2016 12:55	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1600648-006	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	----	0.1	pH Unit	**8.7**	----	----	----	----
EA010FD: Field Conductivity								
Electrical Conductivity (Non Compensated)	----	1	µS/cm	**1150**	----	----	----	----
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	----	10	mg/L	**747**	----	----	----	----
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	**0.04**	----	----	----	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	**32**	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	**5**	----	----	----	----
FWI-EN/001: Groundwater Sampling - Depth								
Depth	----	0.01	m	----	----	----	----	----