

CERTIFICATE OF ANALYSIS

Work Order : **EW1902029**
Client : **HANSON CONSTRUCTION MATERIALS PTY LTD**
Contact : MR STEPHEN BUTCHER
Address : BOOLLWARROO PDE
 SHELLHARBOUR NSW, AUSTRALIA 2529

Telephone : +61 02 4295 1355
Project : Bass Point Quaterly Water Monitoring
Order number : 4502568882
C-O-C number : ----
Sampler : Robert DaLio
Site : ----
Quote number : WL/043/11 Bass Point Water Monitoring
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 : 10-May-2019 14:34
Date Analysis Commenced : 10-May-2019
Issue Date : 20-May-2019 16:44



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.

- Killalea Lagoon depth taken from red depth guage.
- Sampling and sample data supplied by ALS Wollongong.
- Sampling completed as per EN/67.11 Groundwater Sampling.
- 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.
- 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			BT1201	BT1202	Killalea Lagoon	BT702	BT703
		Client sampling date / time			10-May-2019 09:30	10-May-2019 09:25	10-May-2019 10:10	10-May-2019 08:55	10-May-2019 09:50
Compound	CAS Number	LOR	Unit	EW1902029-001	EW1902029-002	EW1902029-003	EW1902029-004	EW1902029-005	
				Result	Result	Result	Result	Result	
EA005FD: Field pH									
pH	----	0.1	pH Unit	----	----	6.6	6.1	5.6	
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	----	----	1860	2270	1760	
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	1180	887	
EA020FD: Field Salinity									
Salinity	----	0.2	g/L	----	----	1.2	----	----	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	----	----	37	----	----	
EA116: Temperature									
Temperature	----	0.1	°C	----	----	----	16.4	17.9	
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	----	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	----	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	----	55	18	
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	55	18	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	102	110	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	----	----	----	504	399	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	----	----	----	24	19	
Magnesium	7439-95-4	1	mg/L	----	----	----	39	26	
Sodium	7440-23-5	1	mg/L	----	----	----	334	250	
Potassium	7440-09-7	1	mg/L	----	----	----	5	4	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	<0.01	----	----	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	4.0	0.5	0.4	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	----	----	4.0	----	----	
EK067G: Total Phosphorus as P by Discrete Analyser									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BT1201	BT1202	Killalea Lagoon	BT702	BT703
Client sampling date / time				10-May-2019 09:30	10-May-2019 09:25	10-May-2019 10:10	10-May-2019 08:55	10-May-2019 09:50	
Compound	CAS Number	LOR	Unit	EW1902029-001	EW1902029-002	EW1902029-003	EW1902029-004	EW1902029-005	
				Result	Result	Result	Result	Result	
EK067G: Total Phosphorus as P by Discrete Analyser - Continued									
Total Phosphorus as P	----	0.01	mg/L	----	----	0.24	0.49	<0.01	
EN67 PK: Field Tests									
Field Observations	----	0.01	--	DESTROYED	NO ACCESS	----	----	----	
EP025FD: Field Dissolved Oxygen									
Dissolved Oxygen	----	0.01	mg/L	----	----	8.78	----	----	
FWI-EN/001: Groundwater Sampling - Depth									
Depth	----	0.01	m	----	----	----	24.5	5.43	
FWI-EN/002: Surface Water Sampling - Depth									
Depth - Surface Water	----	0.01	m	----	----	<0.65	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	BH 1	----	----	----	----
			Client sampling date / time	10-May-2019 10:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1902029-006	-----	-----	-----	-----
				Result	----	----	----	----
EN67 PK: Field Tests								
Field Observations	----	0.01	--	DESTROYED	----	----	----	----