

CERTIFICATE OF ANALYSIS

Work Order : **EW2003678**
Client : **HANSON CONSTRUCTION MATERIALS PTY LTD**
Contact : MR STEVE BUTCHER
Address : BOOLLWARROO PDE
 SHELLHARBOUR NSW, AUSTRALIA 2529

Telephone : +61 02 4295 1355
Project : Bass Point Quaterly Water Monitoring
Order number : ----
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 : 14-Aug-2020 16:24
Date Analysis Commenced : 14-Aug-2020
Issue Date : 21-Aug-2020 15:44



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>
Ashesh Patel	Senior 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 ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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.

- **Analytical work for this work order will be conducted at ALS Sydney.**
- Killalea Lagoon Depth taken from the red gauge.
- pH performed by ALS Wollongong via in-house method EA005FD and EN67 PK.
- Electrical conductivity performed by ALS Wollongong via in-house method EA010FD and EN67 PK.
- Sampling and groundwater depth measurements completed by ALS Wollongong via inhouse sampling method EN/67.11 Groundwater Sampling.
- Sampling completed by ALS Wollongong in accordance with in-house sampling method EN/67.6 Rivers and Streams.
- Temperature performed by ALS Wollongong via in-house method EA016 and EN67 PK.
- Dissolved oxygen (DO) performed by ALS Wollongong via in-house method EA025FD and EN67 PK.
- All field analysis performed by ALS Wollongong were completed at the time of sampling.
- Sampling completed by ALS Wollongong in accordance with in-house sampling method 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				14-Aug-2020 00:00	14-Aug-2020 10:45	14-Aug-2020 10:00	14-Aug-2020 11:30	14-Aug-2020 11:55	
Compound	CAS Number	LOR	Unit	EW2003678-001	EW2003678-002	EW2003678-003	EW2003678-004	EW2003678-005	
				Result	Result	Result	Result	Result	
EA005FD: Field pH									
pH	----	0.1	pH Unit	----	8.8	5.2	6.5	5.7	
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	----	1560	897	1300	1360	
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	559	----	
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	----	686	
EA020FD: Field Salinity									
Salinity	----	0.2	g/L	----	----	0.6	----	----	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	----	----	<5	----	----	
EA116: Temperature									
Temperature	----	0.1	°C	----	18.1	----	18.5	18.8	
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	----	----	----	122	35	
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	122	35	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	86	153	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	----	----	----	298	322	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	----	----	----	17	16	
Magnesium	7439-95-4	1	mg/L	----	----	----	17	21	
Sodium	7440-23-5	1	mg/L	----	----	----	211	214	
Potassium	7440-09-7	1	mg/L	----	----	----	5	3	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	0.16	----	----	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	3.9	0.3	0.4	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	----	----	4.1	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BT1201	BT1202	Killalea Lagoon	BT702	BT703
Client sampling date / time				14-Aug-2020 00:00	14-Aug-2020 10:45	14-Aug-2020 10:00	14-Aug-2020 11:30	14-Aug-2020 11:55	
Compound	CAS Number	LOR	Unit	EW2003678-001	EW2003678-002	EW2003678-003	EW2003678-004	EW2003678-005	
				Result	Result	Result	Result	Result	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	----	----	0.07	0.17	0.04	
EN67 PK: Field Tests									
Field Observations	----	0.01	--	DESTROYED	----	----	----	----	
EP025FD: Field Dissolved Oxygen									
Dissolved Oxygen	----	0.01	mg/L	----	----	10.9	----	----	
FWI-EN/001: Groundwater Sampling - Depth									
Depth	----	0.01	m	----	19.4	----	23.8	4.82	
QWI-EN 67.04 Sampling of Lakes and Reservoirs, QWI-EN 67.06 Sampling of Rivers and Streams									
Depth - Surface Water	----	0.01	m	----	----	0.30	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	BH 1	----	----	----	----
			Client sampling date / time	14-Aug-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW2003678-006	-----	-----	-----	-----
				Result	----	----	----	----
EN67 PK: Field Tests								
Field Observations	----	0.01	--	DESTROYED	----	----	----	----