

## CERTIFICATE OF ANALYSIS

**Work Order** : **EW2002350**  
**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** : 15-May-2020 13:28  
**Date Analysis Commenced** : 15-May-2020  
**Issue Date** : 25-May-2020 15:25



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 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.
- 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.
- 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			15-May-2020 00:00	15-May-2020 10:23	15-May-2020 11:15	15-May-2020 10:00	15-May-2020 09:40
Compound	CAS Number	LOR	Unit	EW2002350-001	EW2002350-002	EW2002350-003	EW2002350-004	EW2002350-005	
				Result	Result	Result	Result	Result	
<b>EA005FD: Field pH</b>									
pH	----	0.1	pH Unit	----	9.0	4.6	6.9	5.8	
<b>EA010FD: Field Conductivity</b>									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	----	1550	4760	2750	1560	
<b>EA015: Total Dissolved Solids dried at 180 ± 5 °C</b>									
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	1700	938	
<b>EA020FD: Field Salinity</b>									
Salinity	----	0.2	g/L	----	----	3.2	----	----	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>									
Suspended Solids (SS)	----	5	mg/L	----	----	22	----	----	
<b>EA116: Temperature</b>									
Temperature	----	0.1	°C	----	18.0	----	17.7	18.2	
<b>ED037P: Alkalinity by PC Titrator</b>									
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	----	----	----	148	35	
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	148	35	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	137	156	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	1	mg/L	----	----	----	819	454	
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L	----	----	----	62	17	
Magnesium	7439-95-4	1	mg/L	----	----	----	78	26	
Sodium	7440-23-5	1	mg/L	----	----	----	334	240	
Potassium	7440-09-7	1	mg/L	----	----	----	3	3	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	0.02	----	----	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	33.4	0.4	0.4	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	----	----	33.4	----	----	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									



### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BT1201	BT1202	Killalea Lagoon	BT702	BT703
Client sampling date / time				15-May-2020 00:00	15-May-2020 10:23	15-May-2020 11:15	15-May-2020 10:00	15-May-2020 09:40	
Compound	CAS Number	LOR	Unit	EW2002350-001	EW2002350-002	EW2002350-003	EW2002350-004	EW2002350-005	
				Result	Result	Result	Result	Result	
<b>EK067G: Total Phosphorus as P by Discrete Analyser - Continued</b>									
Total Phosphorus as P	----	0.01	mg/L	----	----	0.06	0.34	0.02	
<b>EN67 PK: Field Tests</b>									
Field Observations	----	0.01	--	DESTROYED	----	----	----	----	
<b>EP025FD: Field Dissolved Oxygen</b>									
Dissolved Oxygen	----	0.01	mg/L	----	----	9.98	----	----	
<b>FWI-EN/001: Groundwater Sampling - Depth</b>									
Depth	----	0.01	m	----	20.2	----	25.9	5.12	
<b>QWI-EN 67.04 Sampling of Lakes and Reservoirs, QWI-EN 67.06 Sampling of Rivers and Streams</b>									
Depth - Surface Water	----	0.01	m	----	----	<0.7	----	----	



### Analytical Results

Sub-Matrix: <b>WATER</b> (Matrix: <b>WATER</b> )			Client sample ID	BH 1	----	----	----	----
Client sampling date / time			15-May-2020 00:00	----	----	----	----	
Compound	CAS Number	LOR	Unit	EW2002350-006	-----	-----	-----	-----
				Result	----	----	----	----
<b>EN67 PK: Field Tests</b>								
Field Observations	----	0.01	--	<b>DESTROYED</b>	----	----	----	----