

## CERTIFICATE OF ANALYSIS

**Work Order** : **EW2100658**  
**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** : 4502838580  
**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** : 12-Feb-2021 16:13  
**Date Analysis Commenced** : 12-Feb-2021  
**Issue Date** : 24-Feb-2021 17:01



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, unless the sampling was conducted by ALS. 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, 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.
- Electrical conductivity performed by ALS Wollongong via in-house method EA010FD and EN67 PK.
- Sampling and sample data supplied by ALS Wollongong.
- Sampling and groundwater depth measurements completed by ALS Wollongong via inhouse sampling method EN/67.11 Groundwater Sampling.
- Field tests completed on day of sampling/receipt.
- 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)				Sample ID	BT1201	BT1202	Killalea Lagoon	BT702	BT703
Sampling date / time				12-Feb-2021 00:00	12-Feb-2021 13:40	12-Feb-2021 14:00	12-Feb-2021 13:15	12-Feb-2021 12:50	
Compound	CAS Number	LOR	Unit	EW2100658-001	EW2100658-002	EW2100658-003	EW2100658-004	EW2100658-005	
				Result	Result	Result	Result	Result	
<b>EA005FD: Field pH</b>									
pH	----	0.1	pH Unit	----	7.8	6.4	6.3	5.8	
<b>EA010FD: Field Conductivity</b>									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	----	1600	1100	1950	1580	
<b>EA015: Total Dissolved Solids dried at 180 ± 5 °C</b>									
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	1040	902	
<b>EA020FD: Field Salinity</b>									
Salinity	----	0.2	g/L	----	----	0.5	----	----	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>									
Suspended Solids (SS)	----	5	mg/L	----	----	55	----	----	
<b>EA116: Temperature</b>									
Temperature	----	0.1	°C	----	19.3	----	19.9	19.7	
<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	----	----	----	99	40	
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	99	40	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	90	122	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	1	mg/L	----	----	----	529	424	
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L	----	----	----	20	22	
Magnesium	7439-95-4	1	mg/L	----	----	----	34	28	
Sodium	7440-23-5	1	mg/L	----	----	----	318	249	
Potassium	7440-09-7	1	mg/L	----	----	----	5	4	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	0.06	----	----	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	3.2	0.8	0.4	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	----	----	3.3	----	----	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									



### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BT1201	BT1202	Killalea Lagoon	BT702	BT703
Sampling date / time				12-Feb-2021 00:00	12-Feb-2021 13:40	12-Feb-2021 14:00	12-Feb-2021 13:15	12-Feb-2021 12:50	
Compound	CAS Number	LOR	Unit	EW2100658-001	EW2100658-002	EW2100658-003	EW2100658-004	EW2100658-005	
				Result	Result	Result	Result	Result	
<b>EK067G: Total Phosphorus as P by Discrete Analyser - Continued</b>									
Total Phosphorus as P	----	0.01	mg/L	----	----	0.30	0.64	0.03	
<b>EN67 PK: Field Tests</b>									
Field Observations	----	0.01	--	DESTROYED	----	----	----	----	
<b>EP025FD: Field Dissolved Oxygen</b>									
Dissolved Oxygen	----	0.01	mg/L	----	----	4.41	----	----	
<b>FWI-EN/001: Groundwater Sampling - Depth</b>									
Depth	----	0.01	m	----	19.0	----	25.9	4.46	
<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	----	----	0.60	----	----	



### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH 1	----	----	----	----
			Sampling date / time	12-Feb-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW2100658-006	-----	-----	-----	-----
				Result	----	----	----	----
<b>EN67 PK: Field Tests</b>								
<b>Field Observations</b>	----	0.01	--	<b>DESTROYED</b>	----	----	----	----

### Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

- (WATER) EK067G: Total Phosphorus as P by Discrete Analyser
- (WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser
- (WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser
- (WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser
- (WATER) EA025: Total Suspended Solids dried at 104 ± 2°C
- (WATER) ED045G: Chloride by Discrete Analyser
- (WATER) ED041G: Sulfate (Turbidimetric) as SO4 2- by DA
- (WATER) ED037P: Alkalinity by PC Titrator
- (WATER) ED093F: Dissolved Major Cations
- (WATER) EA015: Total Dissolved Solids dried at 180 ± 5 °C