

## CERTIFICATE OF ANALYSIS

**Work Order** : **EW1900524**  
**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** : ----  
**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** : 07-Feb-2019 15:30  
**Date Analysis Commenced** : 07-Feb-2019  
**Issue Date** : 14-Feb-2019 17:33



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
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong, NSW
Ivan Taylor	Analyst	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.

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  
∅ = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- Killalea Lagoon depth taken from red gauge.
- 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.
- 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			07-Feb-2019 11:00	07-Feb-2019 11:40	07-Feb-2019 09:50	07-Feb-2019 12:25	07-Feb-2019 12:00
Compound	CAS Number	LOR	Unit	EW1900524-001	EW1900524-002	EW1900524-003	EW1900524-004	EW1900524-005	
				Result	Result	Result	Result	Result	
<b>EA005FD: Field pH</b>									
pH	----	0.1	pH Unit	----	----	8.5	6.0	5.4	
<b>EA010FD: Field Conductivity</b>									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	----	----	1950	1920	1650	
<b>EA015: Total Dissolved Solids dried at 180 ± 5 °C</b>									
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	1040	875	
<b>EA020FD: Field Salinity</b>									
Salinity	----	0.2	g/L	----	----	0.9	----	----	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>									
Suspended Solids (SS)	----	5	mg/L	----	----	47	----	----	
<b>EA116: Temperature</b>									
Temperature	----	0.1	°C	----	----	----	22.6	21.7	
<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	----	----	----	100	23	
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	100	23	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	88	113	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	1	mg/L	----	----	----	500	442	
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L	----	----	----	22	18	
Magnesium	7439-95-4	1	mg/L	----	----	----	36	27	
Sodium	7440-23-5	1	mg/L	----	----	----	304	260	
Potassium	7440-09-7	1	mg/L	----	----	----	4	4	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	<0.01	----	----	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	1.9	0.1	0.2	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	----	----	1.9	----	----	
<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				07-Feb-2019 11:00	07-Feb-2019 11:40	07-Feb-2019 09:50	07-Feb-2019 12:25	07-Feb-2019 12:00	
Compound	CAS Number	LOR	Unit	EW1900524-001	EW1900524-002	EW1900524-003	EW1900524-004	EW1900524-005	
				Result	Result	Result	Result	Result	
<b>EK067G: Total Phosphorus as P by Discrete Analyser - Continued</b>									
Total Phosphorus as P	----	0.01	mg/L	----	----	0.05	0.36	0.04	
<b>EN67 PK: Field Tests</b>									
Field Observations	----	0.01	--	DESTROYED	NO ACCESS	----	----	----	
<b>EP025FD: Field Dissolved Oxygen</b>									
Dissolved Oxygen	----	0.01	mg/L	----	----	10.1	----	----	
<b>FWI-EN/001: Groundwater Sampling - Depth</b>									
Depth	----	0.01	m	----	----	----	25.2	6.50	
<b>FWI-EN/002: Surface Water Sampling - Depth</b>									
Depth - Surface Water	----	0.01	m	----	----	<0.75	----	----	



**Analytical Results**

Sub-Matrix: <b>WATER</b> (Matrix: <b>WATER</b> )			Client sample ID	<b>BH 1</b>	----	----	----	----
			Client sampling date / time	07-Feb-2019 12:15	----	----	----	----
Compound	CAS Number	LOR	Unit	<b>EW1900524-006</b>	-----	-----	-----	-----
				Result	----	----	----	----
<b>EN67 PK: Field Tests</b>								
Field Observations	----	0.01	--	<b>DESTROYED</b>	----	----	----	----