

## CERTIFICATE OF ANALYSIS

**Work Order** : **EW1702270**  
**Client** : **WOLLONGONG CITY COUNCIL**  
**Contact** : MR WAYDE PETERSON  
**Address** : 41 BURELLI STREET  
 WOLLONGONG NSW, AUSTRALIA 2500  
  
**Telephone** : +61 02 4227 7111  
**Project** : Whytes Gully Groundwater Quarterly  
**Order number** : 3058354  
**C-O-C number** : ----  
**Sampler** : Glenn Davies, Robert DaLio  
**Site** : Whytes Gully LANDFILL  
**Quote number** : SY/454/14 Tender  
**No. of samples received** : 2  
**No. of samples analysed** : 2

**Page** : 1 of 3  
**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  
**Telephone** : 02 42253125  
**Date Samples Received** : 22-May-2017 15:57  
**Date Analysis Commenced** : 22-May-2017  
**Issue Date** : 05-Jun-2017 12:09



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
Robert DaLio	Sampler	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 no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

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.

- Field tests completed on day of sampling/receipt.



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		BH6 (Point 20)	GMW108D (Point 15)	----	----	----
Client sampling date / time				22-May-2017 10:15	22-May-2017 13:25	----	----	----
Compound	CAS Number	LOR	Unit	EW1702270-001	EW1702270-002	-----	-----	-----
				Result	Result	----	----	----
<b>EA005FD: Field pH</b>								
pH	----	0.1	pH Unit	6.5	6.6	----	----	----
<b>EA010FD: Field Conductivity</b>								
Electrical Conductivity (Non Compensated)	----	1	µS/cm	3930	3060	----	----	----
<b>EA015: Total Dissolved Solids dried at 180 ± 5 °C</b>								
Total Dissolved Solids @180°C	----	10	mg/L	2180	1680	----	----	----
<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	604	466	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	604	466	----	----	----
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	171	159	----	----	----
<b>ED045G: Chloride by Discrete Analyser</b>								
Chloride	16887-00-6	1	mg/L	902	621	----	----	----
<b>ED093F: Dissolved Major Cations</b>								
Calcium	7440-70-2	1	mg/L	91	111	----	----	----
Magnesium	7439-95-4	1	mg/L	100	81	----	----	----
Sodium	7440-23-5	1	mg/L	687	397	----	----	----
Potassium	7440-09-7	1	mg/L	<1	2	----	----	----
<b>EK055G: Ammonia as N by Discrete Analyser</b>								
Ammonia as N	7664-41-7	0.01	mg/L	0.16	0.04	----	----	----
<b>EP005: Total Organic Carbon (TOC)</b>								
Total Organic Carbon	----	1	mg/L	10	3	----	----	----
<b>FWI-EN/001: Groundwater Sampling - Depth</b>								
Depth	----	0.01	m	1.39	2.03	----	----	----