

CERTIFICATE OF ANALYSIS

Work Order : **EW2002180**
Client : **WOLLONGONG CITY COUNCIL**
Contact : DELLA KUTZNER
Address : 41 BURELLI STREET
 WOLLONGONG NSW, AUSTRALIA 2500

Telephone : +61 02 4227 7111
Project : Whytes Gully Storm Water Overflow
Order number : 1011047
C-O-C number : ----
Sampler : Robert DaLio
Site : ----
Quote number : WO/005/18 TENDER
No. of samples received : 3
No. of samples analysed : 3

Page : 1 of 4
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 : 05-May-2020 14:30
Date Analysis Commenced : 05-May-2020
Issue Date : 12-May-2020 15:43



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
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.**
- 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 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.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		Point 1 (Point 1)	Point 4 (Point 33)	Point 6 (Point 34)	----	----	
Client sampling date / time				05-May-2020 12:15		05-May-2020 12:50		05-May-2020 12:30		----	----
Compound	CAS Number	LOR	Unit	EW2002180-001	EW2002180-002	EW2002180-003	-----	-----	-----	-----	
				Result	Result	Result	----	----	----	----	
EA005FD: Field pH											
pH	----	0.1	pH Unit	7.2	7.0	7.1	----	----	----	----	----
EA010FD: Field Conductivity											
Electrical Conductivity (Non Compensated)	----	1	µS/cm	846	810	620	----	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C											
Suspended Solids (SS)	----	5	mg/L	35	8	<5	----	----	----	----	----
EA116: Temperature											
Temperature	----	0.1	°C	16.0	14.5	14.9	----	----	----	----	----
ED037P: Alkalinity by PC Titrator											
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	220	232	199	----	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	220	232	199	----	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA											
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	32	31	37	----	----	----	----	----
ED045G: Chloride by Discrete Analyser											
Chloride	16887-00-6	1	mg/L	135	125	50	----	----	----	----	----
ED093T: Total Major Cations											
Calcium	7440-70-2	1	mg/L	56	52	51	----	----	----	----	----
Magnesium	7439-95-4	1	mg/L	25	24	23	----	----	----	----	----
Sodium	7440-23-5	1	mg/L	79	76	43	----	----	----	----	----
Potassium	7440-09-7	1	mg/L	11	10	3	----	----	----	----	----
EG020F: Dissolved Metals by ICP-MS											
Iron	7439-89-6	0.05	mg/L	<0.05	0.13	0.15	----	----	----	----	----
EK040P: Fluoride by PC Titrator											
Fluoride	16984-48-8	0.1	mg/L	0.4	0.4	0.2	----	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser											
Ammonia as N	7664-41-7	0.01	mg/L	0.07	<0.01	<0.01	----	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser											
Nitrite as N	14797-65-0	0.01	mg/L	0.03	0.01	<0.01	----	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser											
Nitrate as N	14797-55-8	0.01	mg/L	0.71	0.51	0.01	----	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser											



Analytical Results

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Compound	CAS Number	LOR	Unit		EW2002180-001	EW2002180-002	EW2002180-003	-----	-----
					Result	Result	Result	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued									
Nitrite + Nitrate as N	----	0.01	mg/L		0.74	0.52	0.01	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		5	4	8	----	----
EP025FD: Field Dissolved Oxygen									
Dissolved Oxygen	----	0.01	mg/L		9.60	7.71	6.08	----	----
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	0.05	mg/L		<0.05	<0.05	<0.05	----	----