ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EW2104714**	Page	: 1 of 4
Client	: **WOLLONGONG CITY COUNCIL**	Laboratory	: Environmental Division NSW South Coast
Contact	: DELLA KUTZNER	Contact	: Aneta Prosaroski
Address	: 41 BURELLI STREET WOLLONGONG NSW, AUSTRALIA 2500	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: +61 02 4227 7111	Telephone	: 02 42253125
Project	: Whytes Gully Storm Water Overflow	Date Samples Received	: 08-Nov-2021 13:06
Order number	: 1033040	Date Analysis Commenced	: 08-Nov-2021
C-O-C number	: ----	Issue Date	: 15-Nov-2021 11:38
Sampler	: Robert DaLio		
Site	: ----		
Quote number	: WO/005/18 TENDER		
No. of samples received	: 3		
No. of samples analysed	: 3		

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.

Signatories	*Position*	*Accreditation Category*
Aneta Prosaroski	Client Liaison Officer	Laboratory - Wollongong, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	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 accordace 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)			Sample ID	Point 1 (Point 1)	Point 4 (Point 33)	Point 6 (Point 34)	----	----
			Sampling date / time	08-Nov-2021 12:00	08-Nov-2021 11:35	08-Nov-2021 11:50	----	----
Compound	CAS Number	LOR	Unit	EW2104714-001	EW2104714-002	EW2104714-003	--------	--------
				Result	Result	Result	----	----
EA005FD: Field pH								
pH	----	0.1	pH Unit	7.4	7.4	7.5	----	----
EA010FD: Field Conductivity								
Electrical Conductivity (Non Compensated)	----	1	µS/cm	827	302	563	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	34	6	<5	----	----
EA116: Temperature								
Temperature	----	0.1	°C	22.5	23.1	22.4	----	----
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	212	95	159	----	----
Total Alkalinity as CaCO3	----	1	mg/L	212	95	159	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	38	11	33	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	110	29	58	----	----
ED093T: Total Major Cations								
Calcium	7440-70-2	1	mg/L	45	23	47	----	----
Magnesium	7439-95-4	1	mg/L	23	8	19	----	----
Sodium	7440-23-5	1	mg/L	91	27	40	----	----
Potassium	7440-09-7	1	mg/L	7	2	3	----	----
EG020F: Dissolved Metals by ICP-MS								
Iron	7439-89-6	0.05	mg/L	<0.05	0.06	<0.05	----	----
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	0.3	<0.1	0.1	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.12	0.01	0.01	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	0.05	<0.01	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.57	0.05	0.04	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Point 1 (Point 1)	Point 4 (Point 33)	Point 6 (Point 34)	----	----
			Sampling date / time	08-Nov-2021 12:00	08-Nov-2021 11:35	08-Nov-2021 11:50	----	----
Compound	CAS Number	LOR	Unit	EW2104714-001	EW2104714-002	EW2104714-003	--------	--------
				Result	Result	Result	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.62**	**0.05**	**0.04**	**----**	**----**
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	**14**	**3**	**2**	**----**	**----**
EP025FD: Field Dissolved Oxygen								
Dissolved Oxygen	----	0.01	mg/L	**6.04**	**6.50**	**7.32**	**----**	**----**
EP035G: Total Phenol by Discrete Analyser								
Phenols (Total)	----	0.05	mg/L	<0.05	<0.05	<0.05	**----**	**----**

Inter-Laboratory Testing

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

(WATER) EP005: Total Organic Carbon (TOC)

(WATER) EP035G: Total Phenol by Discrete Analyser

(WATER) EK058G: Nitrate as N by Discrete Analyser

(WATER) EK057G: Nitrite as N by Discrete Analyser

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) EG020F: Dissolved Metals by ICP-MS

(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C

(WATER) ED045G: Chloride by Discrete Analyser

(WATER) ED037P: Alkalinity by PC Titrator

(WATER) EK040P: Fluoride by PC Titrator

(WATER) ED041G: Sulfate (Turbidimetric) as SO4 2- by DA

(WATER) ED093T: Total Major Cations