

CERTIFICATE OF ANALYSIS

Work Order : **EW2001920**
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 : 14-Apr-2020 15:18
Date Analysis Commenced : 14-Apr-2020
Issue Date : 21-Apr-2020 16:29



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 |
| Glenn Davies | Environmental Services Representative | 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.**
- Sampling and pH, Conductivity, Dissolved Oxygen and Temperature data supplied by ALS Wollongong.
- Sampling completed as per EN/67.6 Rivers and Streams
- pH, Conductivity, Dissolved Oxygen and Temperature tests completed on day of sampling/receipt.



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 | | | | | 14-Apr-2020 13:45 | 14-Apr-2020 14:00 | 14-Apr-2020 13:35 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | EW2001920-001 | EW2001920-002 | EW2001920-003 | ----- | ----- | |
| | | | | Result | Result | Result | ---- | ---- | |
| EA005FD: Field pH | | | | | | | | | |
| pH | ---- | 0.1 | pH Unit | 6.9 | 6.8 | 7.0 | ---- | ---- | |
| EA010FD: Field Conductivity | | | | | | | | | |
| Electrical Conductivity (Non Compensated) | ---- | 1 | µS/cm | 1240 | 349 | 571 | ---- | ---- | |
| EA025: Total Suspended Solids dried at 104 ± 2°C | | | | | | | | | |
| Suspended Solids (SS) | ---- | 5 | mg/L | 26 | <5 | 6 | ---- | ---- | |
| EA116: Temperature | | | | | | | | | |
| Temperature | ---- | 0.1 | °C | 17.4 | 17.0 | 18.6 | ---- | ---- | |
| 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 | 261 | 100 | 170 | ---- | ---- | |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | 261 | 100 | 170 | ---- | ---- | |
| ED041G: Sulfate (Turbidimetric) as SO4 2- by DA | | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | 63 | 18 | 38 | ---- | ---- | |
| ED045G: Chloride by Discrete Analyser | | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | 235 | 35 | 53 | ---- | ---- | |
| ED093T: Total Major Cations | | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | 78 | 24 | 47 | ---- | ---- | |
| Magnesium | 7439-95-4 | 1 | mg/L | 37 | 10 | 20 | ---- | ---- | |
| Sodium | 7440-23-5 | 1 | mg/L | 118 | 30 | 38 | ---- | ---- | |
| Potassium | 7440-09-7 | 1 | mg/L | 6 | 2 | 3 | ---- | ---- | |
| EG020F: Dissolved Metals by ICP-MS | | | | | | | | | |
| Iron | 7439-89-6 | 0.05 | mg/L | <0.05 | 0.71 | 0.12 | ---- | ---- | |
| EK040P: Fluoride by PC Titrator | | | | | | | | | |
| Fluoride | 16984-48-8 | 0.1 | mg/L | 0.4 | 0.1 | 0.2 | ---- | ---- | |
| EK055G: Ammonia as N by Discrete Analyser | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.40 | <0.01 | 0.01 | ---- | ---- | |
| EK057G: Nitrite as N by Discrete Analyser | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | 0.01 | <0.01 | <0.01 | ---- | ---- | |
| EK058G: Nitrate as N by Discrete Analyser | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | 0.05 | <0.01 | <0.01 | ---- | ---- | |
| EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser | | | | | | | | | |



Analytical Results

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| Client sampling date / time | | | | | 14-Apr-2020 13:45 | 14-Apr-2020 14:00 | 14-Apr-2020 13:35 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EW2001920-001 | EW2001920-002 | EW2001920-003 | ----- | ----- |
| | | | | | Result | Result | Result | ---- | ---- |
| EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | 0.06 | <0.01 | <0.01 | ---- | ---- |
| EP005: Total Organic Carbon (TOC) | | | | | | | | | |
| Total Organic Carbon | ---- | 1 | mg/L | | 13 | 3 | 5 | ---- | ---- |
| EP025FD: Field Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | ---- | 0.01 | mg/L | | 4.88 | 4.16 | 5.88 | ---- | ---- |
| EP035G: Total Phenol by Discrete Analyser | | | | | | | | | |
| Phenols (Total) | ---- | 0.05 | mg/L | | <0.05 | <0.05 | <0.05 | ---- | ---- |