ALS Environmental

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EW2001110** | Page | : 1 of 4 |
| Client | : **WOLLONGONG CITY COUNCIL** | Laboratory | : Environmental Division NSW South Coast |
| Contact | : Waste Environmental | Contact | : Glenn Davies |
| Address | : 41 BURELLI STREET<br>WOLLONGONG NSW, AUSTRALIA 2500 | Address | : 1/19 Ralph Black Dr, North Wollongong 2500<br>4/13 Geary Pl, North Nowra 2541<br>Australia NSW Australia |
| Telephone | : ---- | Telephone | : 02 42253125 |
| Project | : Whytes Gully Storm Water Ponds | Date Samples Received | : 02-Mar-2020 12:00 |
| Order number | : 1011047 | Date Analysis Commenced | : 29-Feb-2020 |
| C-O-C number | : ---- | Issue Date | : 09-Mar-2020 16:29 |
| Sampler | : Glenn Davies | | |
| Site | : ---- | | |
| Quote number | : WO/005/18 TENDER | | |
| No. of samples received | : 3 | | |
| No. of samples analysed | : 3 | | |

ilac-MRA NATA

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.

| *Signatories* | *Position* | *Accreditation Category* |
|---|---|---|
| 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 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
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 sample data supplied by ALS Wollongong.
- Point 1 - High algae levels, pooled water no flow.
- Sampling completed as per EN/67.6 Rivers and Streams
- Sampling Completed as per EN/67.4 Lakes and Reservoirs

## 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 | 29-Feb-2020 11:09 | 29-Feb-2020 10:59 | 29-Feb-2020 10:38 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | EW2001110-001 | EW2001110-002 | EW2001110-003 | -------- | -------- |
| | | | | Result | Result | Result | ---- | ---- |
| **EA005FD: Field pH** | | | | | | | | |
| pH | ---- | 0.1 | pH Unit | **6.5** | **6.5** | **6.4** | ---- | ---- |
| **EA010FD: Field Conductivity** | | | | | | | | |
| Electrical Conductivity (Non Compensated) | ---- | 1 | µS/cm | **1300** | **498** | **443** | ---- | ---- |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | |
| Suspended Solids (SS) | ---- | 5 | mg/L | **33** | <5 | <5 | ---- | ---- |
| **EA075FD: Field Redox Potential** | | | | | | | | |
| Redox Potential | ---- | 0.1 | mV | **97.0** | **59.0** | **-34.0** | ---- | ---- |
| **EA116: Temperature** | | | | | | | | |
| Temperature | ---- | 0.1 | °C | **20.2** | **20.7** | **21.7** | ---- | ---- |
| **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 | **368** | **149** | **121** | ---- | ---- |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | **368** | **149** | **121** | ---- | ---- |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | **62** | **30** | **23** | ---- | ---- |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | **191** | **49** | **49** | ---- | ---- |
| **ED093T: Total Major Cations** | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | **88** | **41** | **33** | ---- | ---- |
| Magnesium | 7439-95-4 | 1 | mg/L | **42** | **18** | **15** | ---- | ---- |
| Sodium | 7440-23-5 | 1 | mg/L | **132** | **33** | **33** | ---- | ---- |
| Potassium | 7440-09-7 | 1 | mg/L | **7** | **4** | **4** | ---- | ---- |
| **EG020F: Dissolved Metals by ICP-MS** | | | | | | | | |
| Iron | 7439-89-6 | 0.05 | mg/L | **0.20** | **0.17** | **1.49** | ---- | ---- |
| **EK040P: Fluoride by PC Titrator** | | | | | | | | |
| Fluoride | 16984-48-8 | 0.1 | mg/L | **0.4** | **0.2** | **0.1** | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | **3.67** | <0.01 | **0.03** | ---- | ---- |
| **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** | | | | | | | | |

## 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 | 29-Feb-2020 11:09 | 29-Feb-2020 10:59 | 29-Feb-2020 10:38 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EW2001110-001 | EW2001110-002 | EW2001110-003 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EK058G: Nitrate as N by Discrete Analyser - Continued** | | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | **0.05** | **----** | **----** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | | <0.01 | <0.01 | **0.05** | **----** | **----** |
| **EP005: Total Organic Carbon (TOC)** | | | | | | | | | |
| **Total Organic Carbon** | ---- | 1 | mg/L | | **15** | **3** | **6** | **----** | **----** |
| **EP025FD: Field Dissolved Oxygen** | | | | | | | | | |
| **Dissolved Oxygen** | ---- | 0.01 | mg/L | | **4.60** | **7.47** | **5.15** | **----** | **----** |
| **EP030: Biochemical Oxygen Demand (BOD)** | | | | | | | | | |
| **Biochemical Oxygen Demand** | ---- | 2 | mg/L | | <2 | <2 | <2 | **----** | **----** |
| **EP035SF: Total Phenol by Segmented Flow Analyser** | | | | | | | | | |
| **Phenols (Total)** | ---- | 0.05 | mg/L | | <0.05 | <0.05 | <0.05 | **----** | **----** |