

Client

Contact

Address

E-mail

Telephone

Facsimile

Project

CERTIFICATE OF ANALYSIS Page Work Order : EW1500531 : 1 of 4 WOLLONGONG CITY COUNCIL Laboratory Environmental Division NSW South Coast MR WAYDE PETERSON Contact : Glenn Davies Address 41 BURELLI STREET 99 Kenny Street, Wollongong 2500 WOLLONGONG NSW, AUSTRALIA 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA : wpeterson@wollongong.nsw.gov.au E-mail glenn.davies@alsglobal.com Telephone 02 4225 3125 +61 02 4227 7111 : +61 02 4227 7277 Facsimile 02 4225 3128 QC Level : Whytes Gully Storm Water Annual : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Order number 3032573

C-O-C number	:	Date Samples Received	: 13-FEB-2015
Sampler	: Craig Wilson	Issue Date	: 24-FEB-2015
Site	:		
		No. of samples received	: 3
Quote number	: SY/454/14 Tender	No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA	NATA Accredited Laboratory 825 Accredited for compliance with	Signatories This document has been electronically carried out in compliance with procedures sp	· · · · · · · · · · · · · · · · · · ·	ndicated below. Electronic signing has been		
WOFLD RECOGN SED	ISO/IEC 17025.	Signatories	Position	Accreditation Category		
		Ankit Joshi Glenn Davies Wisam Marassa	Inorganic Chemist Environmental Services Representative Inorganics Coordinator	Sydney Inorganics Laboratory - Wollongong Sydney Inorganics		

Address 99 Kenny Street, Wollongong 2500

Environmental Division NSW Stouth Coasty Riace Poperso to Anato New RL256 houp An ALS Limited Company



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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

- Field tests completed on day of sampling/receipt.
- Sampling and sample data supplied by ALS Wollongong.
- Sampling completed as per FWI-EN002 Surface Water Sampling.

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Analytical Results

EA00SFD: Field pH ··· ··· ··· ··· ··· pH ··· ØH UN 7.5 7.0 ··· ··· EA0167D: Field Conductivity ··· Imit Signal Si	Sub-Matrix: WATER (Matrix: WATER)		Clie	ent sample ID	Point 1	Point 33	Point 34		
Control of the problem Control Optimization Control Optimization pN		Client sampling date / time			13-FEB-2015 08:20	13-FEB-2015 09:45	13-FEB-2015 07:45		
phof <td>Compound</td> <td>CAS Number</td> <td>LOR</td> <td>Unit</td> <td>EW1500531-001</td> <td>EW1500531-002</td> <td>EW1500531-003</td> <td></td> <td></td>	Compound	CAS Number	LOR	Unit	EW1500531-001	EW1500531-002	EW1500531-003		
phof <td>EA005FD: Field pH</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	EA005FD: Field pH								
Electric conductivity (non marked solid)1(pSnm6704994819A819(non marked solid)EAU2: Suppred Solids (S)			0.1	pH Unit	7.5	7.5	7.0		
Electric conductivity (non marked solid)1(pSnm6704994819A819(non marked solid)EAU2: Suppred Solids (S)	EA010FD: Field Conductivity								
EAO25: Suspended Solids v			1	µS/cm	670	499	481		
Suspend Solids (SS)ngSngl10464610nEAX757D: Field Redox Potential01NCSS	Compensated)								
Chronical Control C C C C C Redox Potential 0.1 r/V <0.1	EA025: Suspended Solids								
Redor PotentialEA116: emperature	Suspended Solids (SS)		5	mg/L	10	464	10		
Carbon Annual Comportation Comportation Control Control <th< td=""><td>EA075FD: Field Redox Potential</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	EA075FD: Field Redox Potential								
Temperature 0.1 0.1 0.2 22.9 21.3 21.5	Redox Potential		0.1	mV	<0.1	<0.1	<0.1		
Charlenee Control Contro Control Control <	EA116: Temperature								
Hydroxide Alkalinity as CaCO3 DMO-210-001 1 mg/L <f1< th=""> <th1< th=""> <f1< th=""> <t< td=""><td>Temperature</td><td></td><td>0.1</td><td>°C</td><td>22.9</td><td>21.3</td><td>21.5</td><td></td><td></td></t<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></th1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<></f1<>	Temperature		0.1	°C	22.9	21.3	21.5		
Carbonate Alkalinity as CaCO3 Safe 3.2.6 1 mgL <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td>ED037P: Alkalinity by PC Titrator</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	ED037P: Alkalinity by PC Titrator								
Bicarbonat Alkalinity as CaC03 71-52-3 1 mg/L 190 167 153 Total Alkalinity as CaC03 1 mg/L 190 167 153 ED041G: Sulfate (Turbidimetric) as SO4 2- by DA <t< td=""><td>Hydroxide Alkalinity as CaCO3</td><td>DMO-210-001</td><td>1</td><td>mg/L</td><td><1</td><td><1</td><td><1</td><td></td><td></td></t<>	Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1		
Total Alkalinity as CaCO3 1 mg/L 190 167 153 ED041G: Sulfate (Turbidimetric) as SO4.2- by DA	Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1		
Construction Construction<	Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	190	167	153		
Sulfate as SQ4 - Turbidimetric 14808-79-8 1 mg/L 29 27 14 ED045G: Chloride Discrete analyser	Total Alkalinity as CaCO3		1	mg/L	190	167	153		
ED045G: Chloride Discrete analyser Img/L 71 37 45 Img/L Img/L Choride 16887-00-6 1 mg/L 71 37 45 Img/L Img/L ED033T: Total Major Cations E Img/L 28 41 31 Img/L Img/L Img/L 11 11 Img/L Img/L 11 11 Img/L Img/L Img/L 11 11 11 Img/L Img/L<	ED041G: Sulfate (Turbidimetric) as SO4	4 2- by DA							
Choride 16887-0.6 1 mg/L 71 37 45 ED093T: Total Major Cations Calcium 7440-70-2 1 mg/L 28 41 31 Magnesium 7439-95-4 1 mg/L 28 41 31 Sodium 7439-95-4 1 mg/L 16 19 15 Sodium 7440-23-5 1 mg/L 100 34 52 Potassium 7440-09-7 1 mg/L 13 4 6 Potassium 7440-09-7 1 mg/L 0.11 0.13 EG029F: Dissolved Metals bICP-MS <td>Sulfate as SO4 - Turbidimetric</td> <td>14808-79-8</td> <td>1</td> <td>mg/L</td> <td>29</td> <td>27</td> <td>14</td> <td></td> <td></td>	Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	29	27	14		
Construction Construction<	ED045G: Chloride Discrete analyser								
Calcium 7440-70-2 1 mg/L 28 41 31 Magnesium 7439-954 1 mg/L 16 19 15 Sodium 7430-25 1 mg/L 100 34 52 Potassium 7440-07 1 mg/L 130 4 6 Potassium 7440-07 1 mg/L 0.10 34 6 Potassium 7440-07 1 mg/L 0.11 0.14 6 E6020F: Dissolved Metals by ICP-MS EK040P: Fluoride by PC Titrator Fluoride 16984-48-8 0.1 mg/L 0.04 0.02 0.01 EK055G: Ammonia as N by Discrete Analyser	Chloride	16887-00-6	1	mg/L	71	37	45		
Magnesium 7439-954 1 mg/L 16 19 15 Sodium 7440-23-5 1 mg/L 100 34 52 Potassium 7440-09-7 1 mg/L 130 4 6 Potassium 7440-09-7 1 mg/L 130 4 6 EG020F: Dissolved Metals by ICP-MS mg/L 0.11 0.11 0.33 Iron 7439-89-6 0.05 mg/L 0.11 0.13 0.33 Fluoride by PC Titrator Fluoride 1698-48-8 0.1 mg/L 0.07 0.02 0.01 Ammonia as N 7664-17 0.01 mg/L EK057G: Nitrite as N by Discrete Analyser	ED093T: Total Major Cations								
Sodium 740-23-5 1 mg/L 100 34 52 Potassium 740-09-7 1 mg/L 13 4 6 EG020F: Dissolved Metals by ICP-MS Image 0.11 0.11 0.33 Iron 7439-89 0.05 mg/L 0.11 0.11 0.33 EK040P: Fluoride by PC Titrator Image 0.4 0.2 0.2 0.2 Image Image Fluoride as N by Discrete Analyser Image 0.07 0.02 0.01 Image	Calcium	7440-70-2	1	mg/L	28	41	31		
Potassium 7440-09-7 1 mg/L 13 4 6 EG020F: Dissolved Metals by ICP-MS	Magnesium	7439-95-4	1	mg/L	16	19	15		
EG020F: Dissolved Metals by ICP-MS Image: Construction of the state of the s	Sodium	7440-23-5	1	mg/L	100	34	52		
Iron 7439-89-6 0.05 mg/L 0.11 0.11 0.33 EK040P: Fluoride by PC Titrator Fluoride 16984-48-8 0.1 mg/L 0.4 0.2 0.2 Fluoride St by Discrete Analyser Ammonia as N 7664-41-7 0.01 mg/L 0.07 0.02 0.01 EK057G: Nitrite as N by Discrete Analyser Ititite as N 0.01 mg/L -0.01 -0.01	Potassium	7440-09-7	1	mg/L	13	4	6		
Iron 7439-89-6 0.05 mg/L 0.11 0.11 0.33 EK040P: Fluoride by PC Titrator Fluoride 16984-48-8 0.1 mg/L 0.4 0.2 0.2 Fluoride St by Discrete Analyser Ammonia as N 7664-41-7 0.01 mg/L 0.07 0.02 0.01 EK057G: Nitrite as N by Discrete Analyser Ititite as N 0.01 mg/L -0.01 -0.01	EG020F: Dissolved Metals by ICP-MS								
Fluoride 16984-48-8 0.1 mg/L 0.4 0.2 0.2 EK055G: Ammonia as N by Discrete Analyser Ammonia as N 7664-41-7 0.01 mg/L 0.07 0.02 0.01 EK057G: Nitrite as N by Discrete Analyser Nitrite as N 0.01 mg/L <0.01		7439-89-6	0.05	mg/L	0.11	0.11	0.33		
Fluoride 16984-48-8 0.1 mg/L 0.4 0.2 0.2 EK055G: Ammonia as N by Discrete Analyser Ammonia as N 7664-41-7 0.01 mg/L 0.07 0.02 0.01 EK057G: Nitrite as N by Discrete Analyser Nitrite as N 0.01 mg/L <0.01	EK040P: Fluoride by PC Titrator								
Ammonia as N 7664-41-7 0.01 mg/L 0.07 0.02 0.01 EK057G: Nitrite as N by Discrete Analyser Nitrite as N 0.01 mg/L <0.01		16984-48-8	0.1	mg/L	0.4	0.2	0.2		
Ammonia as N 7664-41-7 0.01 mg/L 0.07 0.02 0.01 EK057G: Nitrite as N by Discrete Analyser Nitrite as N 0.01 mg/L <0.01	EK055G: Ammonia as N by Discrete Analyser								
Nitrite as N 0.01 mg/L <0.01 <0.01 <0.01			0.01	mg/L	0.07	0.02	0.01		
Nitrite as N 0.01 mg/L <0.01 <0.01 <0.01	EK057G: Nitrite as N by Discrete Analyser								
EK058G: Nitrate as N by Discrete Analyser			0.01	mg/L	<0.01	<0.01	<0.01		
	EK058G: Nitrate as N by Discrete Anal	vser				·			

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Work Order	: EW1500531
Client	: WOLLONGONG CITY COUNCIL
Project	: Whytes Gully Storm Water Annual



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Clie	ent sample ID	Point 1	Point 33	Point 34			
	Client sampling date / time				13-FEB-2015 09:45	13-FEB-2015 07:45			
Compound	CAS Number	LOR	Unit	EW1500531-001	EW1500531-002	EW1500531-003			
EK058G: Nitrate as N by Discrete Analyser - Continued									
Nitrate as N	14797-55-8	0.01	mg/L	1.39	0.07	<0.01			
EK059G: Nitrite plus Nitrate as N (NOx) b	EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N		0.01	mg/L	1.39	0.07	<0.01			
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon		1	mg/L	11	2	8			
EP025FD: Field Dissolved Oxygen									
Dissolved Oxygen		0.01	mg/L	6.14	8.12	3.33			
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)		0.05	mg/L	<0.05	<0.05	<0.05			