

Environmental Division

CERTIFICATE OF ANALYSIS

<p>Work Order : EW1201756</p> <p>Client : SHOALHAVEN CITY COUNCIL</p> <p>Contact : Mr David Hojem</p> <p>Address : PO Box 42 Nowra NSW 2541</p> <p>E-mail : nowra.lab@alsglobal.com</p> <p>Telephone : 02 4429 3406</p> <p>Facsimile : 02 4429 5929</p> <p>Project : Huskisson Landfill</p> <p>Order number : 15435 16780</p> <p>C-O-C number : ----</p> <p>Sampler : Craig Wilson</p> <p>Site : ----</p> <p>Quote number : ----</p>	<p>Page : 1 of 5</p> <p>Laboratory : Environmental Division NSW South Coast</p> <p>Contact : Brianne Martin</p> <p>Address : 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA</p> <p>E-mail : Nowra.Lab@alsglobal.com</p> <p>Telephone : 02 44232063</p> <p>Facsimile : 02 44232083</p> <p>QC Level : NEPM 1999 Schedule B(3) and ALS QCS3 requirement</p> <p>Date Samples Received : 22-JUN-2012</p> <p>Issue Date : 29-JUN-2012</p> <p>No. of samples received : 15</p> <p>No. of samples analysed : 15</p>
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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 Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been 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
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong
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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.

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

- **EA015 TDS may bias high for various samples due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.**



Analytical Results

Sub-Matrix: WATER

Client sample ID
 Client sampling date / time

Compound	CAS Number	LOR	Unit	S1	S2	GA 1	GA 2	GA 4
				22-JUN-2012 10:15	22-JUN-2012 09:15	22-JUN-2012 09:10	22-JUN-2012 10:05	22-JUN-2012 10:45
				EW1201756-001	EW1201756-002	EW1201756-003	EW1201756-004	EW1201756-005
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	1	mg/L	344	----	----	3510	1100
ED037P: Alkalinity by PC Titrator								
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	58	54
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	349	108
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	----	----	----	1780	581
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	----	52	24
Magnesium	7439-95-4	1	mg/L	----	----	----	159	48
Sodium	7440-23-5	1	mg/L	----	----	----	1030	308
Potassium	7440-09-7	1	mg/L	8	----	----	8	6
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	----	----	0.08	0.04
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	----	----	----	58.6	19.7
Total Cations	----	0.01	meq/L	----	----	----	60.7	18.7
Ionic Balance	----	0.01	%	----	----	----	1.70	2.66
EN67 PK: Field Tests								
pH	----	0.1	pH Unit	6.9	----	----	5.9	6.0
Electrical Conductivity (Non Compensated)	----	1	µS/cm	571	----	----	----	----
Dissolved Oxygen	----	0.01	mg/L	9.11	----	----	----	----
Field Observations	----	0.01	--	----	DRY	DRY	----	----
Standing Water Level	----	0.01	m AHD	----	----	----	2.54	7.57
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	14	----	----	9	<1
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	<2	----	----	----	----



Analytical Results

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

				GA 5	GA 6	GA 7a	GA 8	GA 9
				22-JUN-2012 11:35	22-JUN-2012 10:55	22-JUN-2012 10:30	22-JUN-2012 09:40	22-JUN-2012 09:35
Compound	CAS Number	LOR	Unit	EW1201756-006	EW1201756-007	EW1201756-008	EW1201756-009	EW1201756-010
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	1	mg/L	3480	518	270	166	----
ED037P: Alkalinity by PC Titrator								
Total Alkalinity as CaCO3	----	1	mg/L	111	1	1	4	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	284	144	48	17	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	1680	221	95	31	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	48	2	<1	<1	----
Magnesium	7439-95-4	1	mg/L	146	18	5	2	----
Sodium	7440-23-5	1	mg/L	913	169	79	23	----
Potassium	7440-09-7	1	mg/L	12	1	<1	3	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.06	0.02	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	55.5	9.25	3.70	1.31	----
Total Cations	----	0.01	meq/L	54.4	8.96	3.85	1.24	----
Ionic Balance	----	0.01	%	1.01	1.64	1.94	----	----
EN67 PK: Field Tests								
pH	----	0.1	pH Unit	5.9	4.1	4.4	5.3	----
Field Observations	----	0.01	--	----	----	----	----	DRY
Standing Water Level	----	0.01	m AHD	4.55	8.61	8.12	9.55	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	7	8	1	6	----



Analytical Results

Sub-Matrix: WATER

				Client sample ID				
				GA 10	GA 11	GA 12	DUP	BLANK
				22-JUN-2012 11:05	22-JUN-2012 11:20	22-JUN-2012 11:15	22-JUN-2012 10:30	22-JUN-2012 11:25
Client sampling date / time				EW1201756-011	EW1201756-012	EW1201756-013	EW1201756-014	EW1201756-015
Compound	CAS Number	LOR	Unit					
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	1	mg/L	520	287	1530	252	----
Total Dissolved Solids @180°C	GIS-210-010	1	mg/L	----	----	----	----	<1
ED037P: Alkalinity by PC Titrator								
Total Alkalinity as CaCO3	----	1	mg/L	85	5	<1	4	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	124	55	376	48	<1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	131	54	641	94	<1
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	28	<1	2	<1	<1
Magnesium	7439-95-4	1	mg/L	15	2	47	4	<1
Sodium	7440-23-5	1	mg/L	126	60	508	77	<1
Potassium	7440-09-7	1	mg/L	5	<1	1	<1	<1
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.02	0.03	0.02	<0.01
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	7.98	2.77	25.9	3.73	<0.01
Total Cations	----	0.01	meq/L	8.24	2.77	26.1	3.68	<0.01
Ionic Balance	----	0.01	%	1.62	----	0.32	0.74	----
EN67 PK: Field Tests								
pH	----	0.1	pH Unit	6.3	4.8	3.9	4.4	6.4
Standing Water Level	----	0.01	m AHD	9.99	8.82	11.6	8.12	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	20	3	15	<1	<1