

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EW1300863	Page	: 1 of 5
Client	: SHOALHAVEN CITY COUNCIL	Laboratory	: Environmental Division NSW South Coast
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Project	: Huskisson Landfill Quarterly	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: 1543516780	Date Samples Received	: 22-MAR-2013
C-O-C number	: ----	Issue Date	: 11-APR-2013
Sampler	: Craig Wilson	No. of samples received	: 15
Site	: ----	No. of samples analysed	: 15
Quote number	: ----		

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>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong
Hoa Nguyen	Senior Inorganic Chemist	Sydney Inorganics
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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 LOR was raised for sample ID BLANK due to insufficient sample.**
- **EA015 TDS may bias high for sample ID GA 8 due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.**



Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

Client sampling date / time

				S1	S2	GA 1	GA 2	GA 4
				22-MAR-2013 08:05	22-MAR-2013 08:55	22-MAR-2013 08:00	22-MAR-2013 08:40	22-MAR-2013 09:15
Compound	CAS Number	LOR	Unit	EW1300863-001	EW1300863-002	EW1300863-003	EW1300863-004	EW1300863-005
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	----	1	mg/L	----	324	----	1700	1170
ED037P: Alkalinity by PC Titrator								
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	54	51
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	229	126
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	----	----	----	720	520
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	----	23	25
Magnesium	7439-95-4	1	mg/L	----	----	----	76	52
Sodium	7440-23-5	1	mg/L	----	----	----	489	331
Potassium	7440-09-7	1	mg/L	----	8	----	6	8
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	0.66	----	<0.01	0.01
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	----	----	----	26.2	18.3
Total Cations	----	0.01	meq/L	----	----	----	28.8	20.1
Ionic Balance	----	0.01	%	----	----	----	4.84	4.72
EN67 PK: Field Tests								
pH	----	0.1	pH Unit	----	6.6	----	6.0	6.0
Electrical Conductivity (Non Compensated)	----	1	µS/cm	----	556	----	----	----
Dissolved Oxygen	----	0.01	mg/L	----	3.57	----	----	----
Field Observations	----	0.01	--	dry	----	dry	----	----
Standing Water Level	----	0.01	m AHD	----	----	----	1.66	7.47
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	----	90	----	13	<1
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	----	11	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				GA 5	GA 6	GA 7a	GA 8	GA 9
				22-MAR-2013 10:00	22-MAR-2013 09:25	22-MAR-2013 09:05	22-MAR-2013 08:25	22-MAR-2013 08:10
Compound	CAS Number	LOR	Unit	EW1300863-006	EW1300863-007	EW1300863-008	EW1300863-009	EW1300863-010
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	----	1	mg/L	4030	588	202	310	----
ED037P: Alkalinity by PC Titrator								
Total Alkalinity as CaCO3	----	1	mg/L	140	<1	<1	4	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	272	123	68	24	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	1800	255	47	47	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	63	2	3	<1	----
Magnesium	7439-95-4	1	mg/L	186	18	8	2	----
Sodium	7440-23-5	1	mg/L	1040	202	44	40	----
Potassium	7440-09-7	1	mg/L	15	1	4	3	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.17	0.09	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	59.2	9.75	2.74	1.91	----
Total Cations	----	0.01	meq/L	64.1	10.4	2.82	1.98	----
Ionic Balance	----	0.01	%	3.91	3.15	1.46	----	----
EN67 PK: Field Tests								
pH	----	0.1	pH Unit	5.7	4.5	4.4	5.2	----
Field Observations	----	0.01	--	----	----	----	----	dry
Standing Water Level	----	0.01	m AHD	3.78	8.73	7.14	8.06	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	3	6	5	6	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				GA 10	GA 11	GA 12	DUP	BLANK
				22-MAR-2013 09:35	22-MAR-2013 09:50	22-MAR-2013 09:45	22-MAR-2013 08:40	22-MAR-2013 08:45
Compound	CAS Number	LOR	Unit	EW1300863-011	EW1300863-012	EW1300863-013	EW1300863-014	EW1300863-015
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	----	1	mg/L	492	372	3210	1830	----
Total Dissolved Solids @180°C	----	1	mg/L	----	----	----	----	<2
ED037P: Alkalinity by PC Titrator								
Total Alkalinity as CaCO3	----	1	mg/L	49	<1	<1	57	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	126	63	271	234	<1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	140	118	1440	722	<1
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	18	<1	2	21	<1
Magnesium	7439-95-4	1	mg/L	12	4	122	68	<1
Sodium	7440-23-5	1	mg/L	130	102	876	500	<1
Potassium	7440-09-7	1	mg/L	6	<1	2	5	<1
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.06	<0.01	<0.01	<0.01	<0.01
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	7.55	4.64	46.3	26.4	<0.01
Total Cations	----	0.01	meq/L	7.69	4.77	48.3	28.5	<0.01
Ionic Balance	----	0.01	%	0.91	1.31	2.13	3.88	----
EN67 PK: Field Tests								
pH	----	0.1	pH Unit	5.7	4.4	3.5	6.0	6.5
Standing Water Level	----	0.01	m AHD	8.73	7.49	9.34	<0.01	<0.01
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	14	2	4	12	<1