TOMINGLEY
GOLD OPERATIONS PTY LTD
(A wholly owned subsidiary of Alkane Resources Ltd)

Tomingley Gold Project

Monthly Environmental Monitoring Report – September 2013

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TABLE OF REVISIONS

Revision Number	Revision Date	Prepared By	Comments
Revision 1	October 2013	Colleen Measday	Submitted for Information

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1. INTRODUCTION AND SCOPE

This Monthly Environmental Monitoring Report has been prepared to collate environmental monitoring data undertaken for the Tomingley Gold Project during the month of September 2013.

This report also compares data collected to targets and provides commentary on environmental issues during the month.

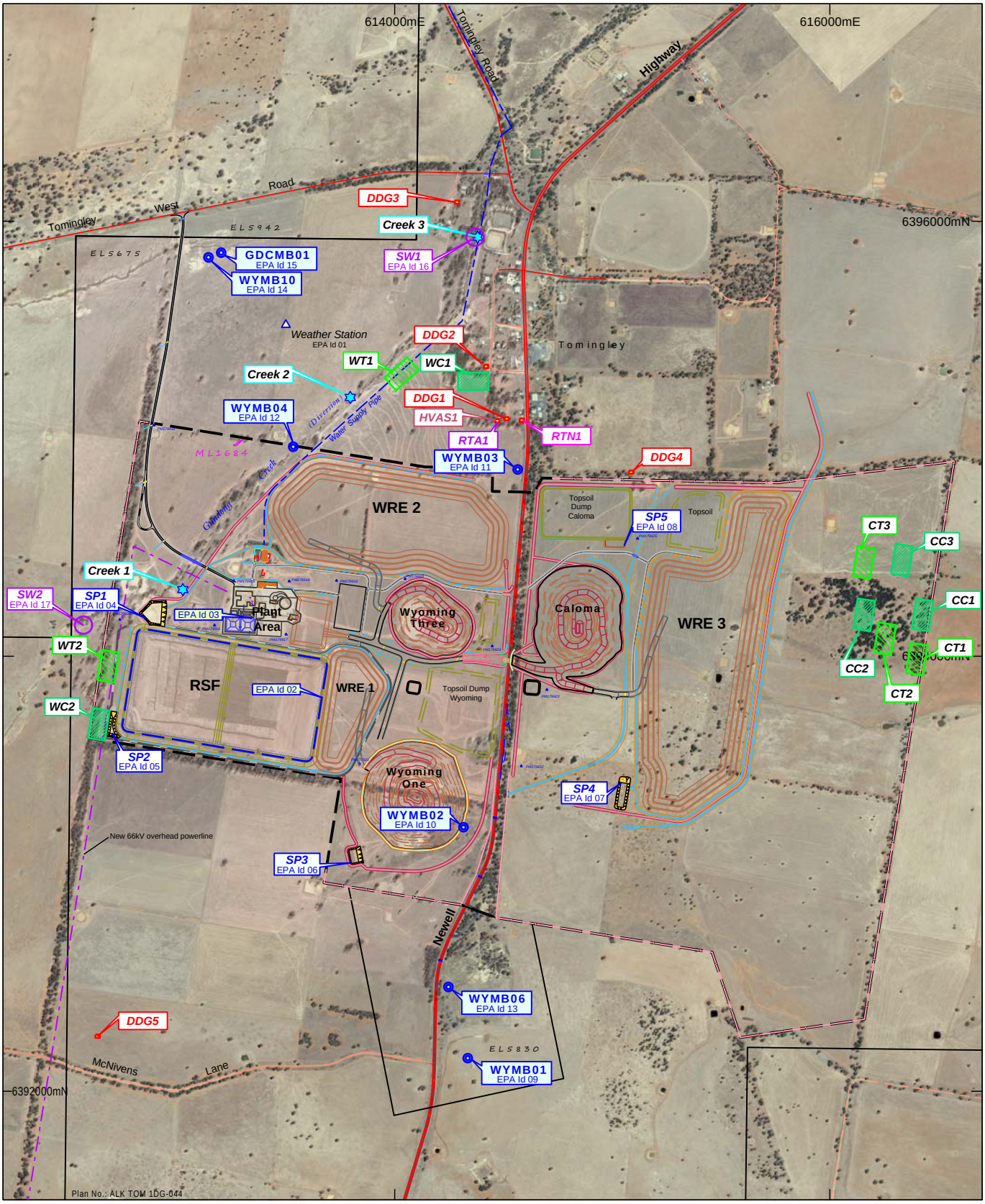
2. WEATHER FOR SEPTEMBER 2013

2.1 WEATHER STATION DATA

Data from the weather station located on site for the month of September 2013 is attached in Appendix 1.

3. MONITORING LOCATIONS

Figure 1 indicates the location where permanent monitoring is undertaken for the project. Any additional monitoring undertaken will be discussed within the body of this report.



SP — Sediment pond discharge location

DDG — Dust deposition gauge location

HVAS — High volume air sampler location

RTA — Real time air quality monitoring station

RTN — Real time noise monitoring station

SW2 — Surface water

WYMB06 — Groundwater bore

Creek 2 — Gundong Creek Diversion monitor / photo point

WT2 — Vegetation treatment site

WC2 — Vegetation control site

Additional EPA ID Locations

EPA Id 02 — Discharge of tailings to the RSF moves around the circumference.

EPA Id 03 — Discharge between the Process Sediment Pond and the Process Water Pond

Scale 1 : 25 000

0 1000 metres

TOMINGLEY GOLD OPERATIONS PTY LTD
(A SUBSIDIARY OF ALKANE RESOURCES LTD)

TOMINGLEY GOLD OPERATION

Environmental Monitoring Sites

Projection - AMG Zone 55
Datum (horizontal) - AGD66

Geology: Alane (CM) Plan No.: ALK TOM 1DG-044
Drafted: DJM Date: 4 October 2013 Figure No.:

4. AIR QUALITY MONITORING

4.1 PM10 MONITORING

PM10 is measured via a Tapered Element Oscillating Microbalance (TEOM) located at the southern edge of the Tomingley Village. This machine transmits real-time data via the internet to a computer located on site.

The Performance Criteria for PM10 has been set at an Annual Average of 30ug/m^3 and a 24-Hour Average of 50ug/m^3.

During September there were no exceedences of the 24-Hour Average of 50ug/m^3 recorded.

The 24-Hour Average for September was 16.8 ug/m^3

The 24-Hour results are included in Appendix 2 to this report.

4.2 DEPOSITIONAL DUST

Depositional Dust monitoring undertaken during September 2013 returned the results indicated in Table 1 below.

Table 1 – Deposited Dust results for September 2013

Location	Date Monitored	Insoluble solids (g/m2/month)	Comments	Maximum increase in deposited dust level	Maximum total deposited dust level
DDG1	09/08/13 - 04/09/13	0.8	These results are all within the acceptable range for depositional dust during construction.	2 g/m2/month	4 g/m2/month
DDG2	09/08/13 - 04/09/13	1.2			
DDG3	09/08/13 - 04/09/13	0.9			
DDG4	09/08/13 - 04/09/13	1.0			
DDG5	09/08/13 - 04/09/13	0.7			

4.3 HIGH VOLUME AIR SAMPLER - TOTAL SUSPENDED PARTICULATES

High Volume Air Sampling (HVAS) for Total Suspended Particulates (TSP) was undertaken during September 2013. Table 2 below provides the results.

The performance criteria for TSP is averaged over 12 months, however data collected to date is below the 90mg/m3 average criteria.

Table 2 – High Volume Air Sampler Data for September 2013

Location	Sheet ID	Date On	Date Off	Results (TSP mg/m3)	Performance Criteria (Annual Average)
HVAS1	8725900	2/9/2013	3/09/2013	39.5	90 mg/m$_3$
HVAS1	8702650	8/09/2013	9/09/2013	25.6	
HVAS1	8702651	14/09/2013	15/09/2013	31.2	
HVAS1	8702652	20/09/2013	21/09/2013	17.9	
HVAS1	8702653	26/09/2013	27/09/2013	49.4	

5. NOISE MONITORING

5.1 REAL-TIME NOISE MONITORING

The real time noise monitor was operational at the southern end of the Tomingley Village until 19th September when it was then relocated to a property on Tomingley West Road. The relocation will enable the noise meter to capture noise data from site with less interference from traffic noise generated by the Newell Highway.

5.2 HAND HELD MONITORING

Annual Independent Noise Monitoring was undertaken from the 2nd to the 5th of September by Ken Scannell. From this monitoring the Annual Noise Monitoring Compliance Report was produced, this report is available on the Alkane website at the following location; http://www.alkane.com.au/index.php/projects/current-projects/tomingley-gold-operations.

This report noted that all sites bar one were compliant with the noise limit criteria. Noise levels recorded at 40 Myall Street, Tomingley, exceeded the noise limit criteria due to the tonal nature of the reversing beepers fitted to mobile equipment on site. Mobile equipment on site has since been fitted with frequency modulated reversing alarms.

6. SURFACE WATER MONITORING

6.1 GUNDONG CREEK

Gundong Creek did not flow during the monitoring period and therefore no samples were collected.

6.2 SEDIMENTATION PONDS

Sedimentation Ponds 1, 2, 3 and 4 are currently constructed and operational on site.
They have been built to capture the ARR 90th percentile average rainfall over a five day period. This has been calculated at 35.6 mm over five days.

If the rainfall event exceeds this over 5 days then the ponds are allowed to and are designed to overflow.

On the 17th of September there was overflow from the sedimentation ponds following 44.2mm of rainfall on the 16th September and a further 10.4mm on the 17th September 2013.

The surveyed Total Volume (m^3) of the Sedimentation Ponds following construction on site are as follows:

- Sediment Basin 1 = 20,800m^3
- Sediment Basin 2 = 3,023m^3
- Sediment Basin 3= 7, 440m^3
- Sediment Basin 4 = 15, 510m^3
- Sediment Basin 5 = will be surveyed upon completion of construction

In all cases the constructed volume has exceeded the minimum design volume.

7. CULTURAL HERITAGE MONITORING

There was no cultural heritage monitoring undertaken in September 2013.

8. GROUNDWATER MONITORING

Groundwater monitoring was undertaken over 24th and 25th September 2013. Samples were collected from 7 out of the 8 wells surrounding the mine site. Samples were not collected from WYMB02 as the well is now un-operational.

The results from this monitoring are included in Appendix 3 of this report.

9. BIODIVERSITY MONITORING

There was no vegetation monitoring undertaken during September 2013.

There were no fauna deaths recorded during September 2013.

Trees were felled within the mining footprint areas from 24th to 30th September 2013. An ecologist was present on site during clearing to monitor for the presence of fauna in the trees to be felled and to relocate any fauna prior to clearing.

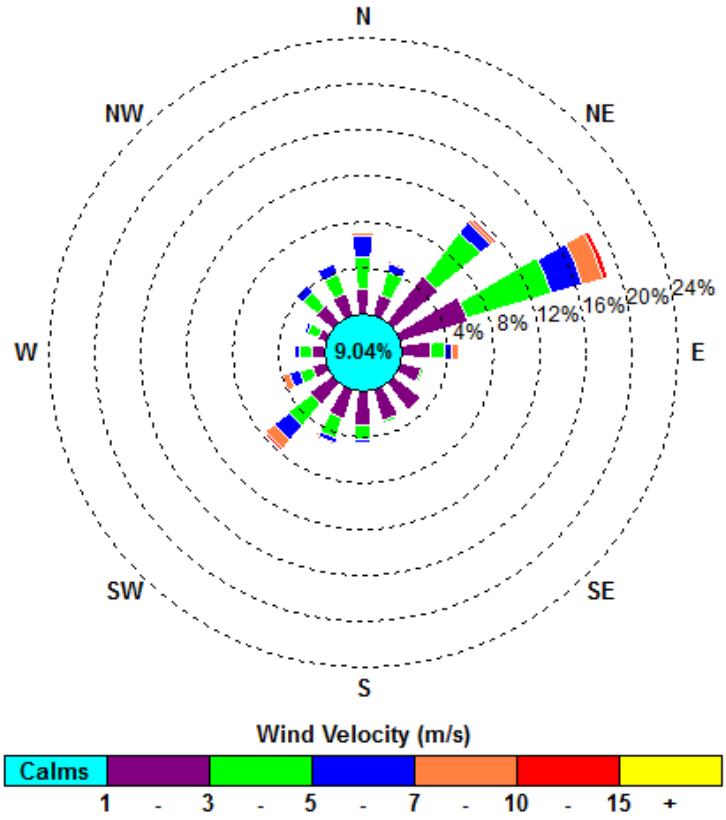
Approximately 8 nests and 2 hollows were relocated to the nature strips surrounding site. Thirteen birds were taken to Taronga Western Plains Zoo for hand rearing. No other animals were found during the tree clearing.

Appendix 1
Weather Station Data

Note: During the month the server hosting the data and software for the Weather Station was upgraded. As a result the data cannot be displayed in the same format as in previous months.

The format should resume in October 2013.

WIND DIRECTION



RAINFALL

Date	Rainfall
September 16	44.2mm
September 17	10.4mm
September 18	0.2mm

Appendix 2
Real Time Air Quality Monitoring Data for PM10

Site Report - Tomingley Gold Mine :

Date & Time	24-hour Average PM_{10}
	ug/m^3
01/09/2013 00:00	11.8
02/09/2013 00:00	17.5
03/09/2013 00:00	19.5
04/09/2013 00:00	21.2
05/09/2013 00:00	22.3
06/09/2013 00:00	22.3
07/09/2013 00:00	23.3
08/09/2013 00:00	12.5
09/09/2013 00:00	22.3
10/09/2013 00:00	31
11/09/2013 00:00	16.3
12/09/2013 00:00	14.9
13/09/2013 00:00	25.6
14/09/2013 00:00	22
15/09/2013 00:00	13.5
16/09/2013 00:00	10.2
17/09/2013 00:00	6.7
18/09/2013 00:00	7.9
19/09/2013 00:00	11.8
20/09/2013 00:00	12.6
21/09/2013 00:00	10.1
22/09/2013 00:00	10.1
23/09/2013 00:00	13.1
24/09/2013 00:00	19.2
25/09/2013 00:00	17.4
26/09/2013 00:00	30.1
27/09/2013 00:00	14.5
28/09/2013 00:00	14.9
29/09/2013 00:00	13.8
30/09/2013 00:00	15.9
Month Average	**16.8**

Appendix 3
Groundwater Monitoring Results

Field Parameters :

Field Parameters	units	Orchard GW037395	GDCMB01	WYMB01	WYMB03	WYMB04	WYMB06	WYMB10
Dissolved Oxygen	ppm	1.63	4.81	7.7	8.42	2.7	7.37	6.8
Electrical Conductivity	mS/cm	0.354	0.492	10.41	17.68	22.12	11.34	23.1
pH	pH value	6.5	6.93	7.85	7.22	6.62	7.15	6.88
Redox	mV	127	111	95	55	14	75	28
Temperature	°C	18.2	17.7	23.5	22.7	22.7	22.3	27.8

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 98105

Client:
Tomingley Gold Operations
PO Box 6278
Dubbo
NSW 2830

Attention: Terence Nhan

Sample log in details:

Your Reference:	**Tomingley Gold Project - Sept 2013**		
No. of samples:	7 Waters		
Date samples received / completed instructions received	26/09/13	/	26/09/13

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	3/10/13	/	3/10/13
Date of Preliminary Report:	Not issued		

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Results Approved By:

Jacinta Hurst
Laboratory Manager

HM in water - dissolved Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	98105-1 WYMB001 25/09/2013 Water	98105-2 WYMB003 25/09/2013 Water	98105-3 WYMB004 25/09/2013 Water	98105-4 WYMB006 25/09/2013 Water	98105-5 WYMB010 25/09/2013 Water
Date prepared	-	27/09/2013	27/09/2013	27/09/2013	27/09/2013	27/09/2013
Date analysed	-	27/09/2013	27/09/2013	27/09/2013	27/09/2013	27/09/2013
Arsenic-Dissolved	µg/L	2	3	<1	59	<1
Cadmium-Dissolved	µg/L	0.3	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	3	<1	<1	3	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	2	5	3	12	<1
Zinc-Dissolved	µg/L	12	7	14	68	6
Iron-Dissolved	µg/L	<10	<10	<10	11	<10

HM in water - dissolved Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	98105-6 GDCMB001 25/09/2013 Water	98105-7 GW037895 25/09/2013 Water
Date prepared	-	27/09/2013	27/09/2013
Date analysed	-	27/09/2013	27/09/2013
Arsenic-Dissolved	µg/L	2	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1
Copper-Dissolved	µg/L	<1	<1
Lead-Dissolved	µg/L	<1	1
Mercury-Dissolved	µg/L	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	<1
Zinc-Dissolved	µg/L	6	17
Iron-Dissolved	µg/L	130	310

Miscellaneous Inorganics						
Our Reference:	UNITS	98105-1	98105-2	98105-3	98105-4	98105-5
Your Reference	----------	WYMB001	WYMB003	WYMB004	WYMB006	WYMB010
Date Sampled	----------	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	28/09/2013	28/09/2013	28/09/2013	28/09/2013	28/09/2013
Date analysed	-	28/09/2013	28/09/2013	28/09/2013	28/09/2013	28/09/2013
pH	pH Units	8.3	7.6	7.3	7.4	7.4
Total Suspended Solids	mg/L	520	31	22	46	<5
Total Dissolved Solids (grav)	mg/L	8,200	14,000	19,000	9,200	20,000
Electrical Conductivity	µS/cm	11,000	21,000	26,000	13,000	27,000
Nitrate as N in water	mg/L	0.021	0.32	0.19	3.2	0.59
Nitrite as N in water	mg/L	0.007	0.019	0.008	0.022	<0.005
Ammonia as N in water	mg/L	0.037	0.016	<0.005	0.016	<0.005
Phosphate as P in water	mg/L	0.086	0.10	0.008	0.044	0.038
Total Cyanide	mg/L	<0.004	<0.004	<0.004	0.031	<0.004
Free Cyanide in Water	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Weak Acid Dissociable Cyanide	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004

Miscellaneous Inorganics			
Our Reference:	UNITS	98105-6	98105-7
Your Reference	----------	GDCMB001	GW037895
Date Sampled	----------	25/09/2013	25/09/2013
Type of sample		Water	Water
Date prepared	-	28/09/2013	28/09/2013
Date analysed	-	28/09/2013	28/09/2013
pH	pH Units	6.9	6.8
Total Suspended Solids	mg/L	230	9
Total Dissolved Solids (grav)	mg/L	780	690
Electrical Conductivity	µS/cm	550	350
Nitrate as N in water	mg/L	16	0.72
Nitrite as N in water	mg/L	<0.005	<0.005
Ammonia as N in water	mg/L	<0.005	0.072
Phosphate as P in water	mg/L	0.054	0.020
Total Cyanide	mg/L	<0.004	<0.004
Free Cyanide in Water	mg/L	<0.004	<0.004
Weak Acid Dissociable Cyanide	mg/L	<0.004	<0.004

Ion Balance						
Our Reference:	UNITS	98105-1	98105-2	98105-3	98105-4	98105-5
Your Reference	----------	WYMB001	WYMB003	WYMB004	WYMB006	WYMB010
Date Sampled	----------	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	27/09/2013	27/09/2013	27/09/2013	27/09/2013	27/09/2013
Date analysed	-	27/09/2013	27/09/2013	27/09/2013	27/09/2013	27/09/2013
Calcium - Dissolved	mg/L	230	170	290	150	220
Potassium - Dissolved	mg/L	7.6	19	21	7.3	23
Sodium - Dissolved	mg/L	2,300	4,800	5,900	2,800	6,300
Magnesium - Dissolved	mg/L	250	500	710	300	590
Hardness	mgCaCO3 /L	1,600	2,500	3,600	1,600	3,000
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	370	1,200	1,100	1,300	980
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	370	1,200	1,100	1,300	980
Sulphate, SO4	mg/L	950	2,100	2,500	2,100	2,800
Chloride, Cl	mg/L	3,500	6,100	8,300	2,900	8,800
Ionic Balance	%	1.8	3.5	3.6	0.80	1.3

Ion Balance			
Our Reference:	UNITS	98105-6	98105-7
Your Reference	----------	GDCMB001	GW037895
Date Sampled	----------	25/09/2013	25/09/2013
Type of sample		Water	Water
Date prepared	-	27/09/2013	27/09/2013
Date analysed	-	27/09/2013	27/09/2013
Calcium - Dissolved	mg/L	1.1	1.0
Potassium - Dissolved	mg/L	0.7	1.3
Sodium - Dissolved	mg/L	100	69
Magnesium - Dissolved	mg/L	1.2	1.8
Hardness	mgCaCO3 /L	8.0	10
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	75	84
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	75	84
Sulphate, SO4	mg/L	15	10
Chloride, Cl	mg/L	58	47
Ionic Balance	%	13	0.14

Method ID	Methodology Summary
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+.
Inorg-019	Suspended Solids - determined gravimetrcially by filtration of the sample, in accordance with APHA 22nd ED, 2540-D. The samples are dried at 104+/-5oC.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-5oC.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA 22nd ED 2510 and Rayment & Lyons.
Inorg-055	Nitrate - determined colourimetrically based on EPA353.2 and APHA 22nd ED NO3- F. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on EPA353.2 and APHA 22nd ED NO2- B. Soils are analysed following a water extraction.
Inorg-057	Ammonia - determined colourimetrically based on EPA350.1 and APHA 22nd ED 4500-NH3 F, Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA 22nd ED 4500 P E. Soils are analysed following a water extraction.
Inorg-013	Cyanide - total determined colourimetrically after distillation, based on APHA 22nd ED, 4500-CN_C,E. Free cyanide determined colourimetrically after filtration and confirmed by diffusion.
Inorg-083	Based on APHA 4500 I. WAD Cyanide is determined colourimetrically by discrete analyser after it is distilled from a slightly acidified sample.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA 22nd ED, 2320-B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 22nd ED, 4110 -B.
Inorg-041	Gravimetric determination of the total solids content of water using APHA 22nd ED 2540B.

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			27/09/2013	98105-3	27/09/2013 || 27/09/2013	LCS-W3	27/09/2013
Date analysed	-			27/09/2013	98105-3	27/09/2013 || 27/09/2013	LCS-W3	27/09/2013
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	98105-3	<1 || [N/T]	LCS-W3	95%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	98105-3	<0.1 || [N/T]	LCS-W3	94%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	98105-3	<1 || [N/T]	LCS-W3	92%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	98105-3	<1 || [N/T]	LCS-W3	91%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	98105-3	<1 || [N/T]	LCS-W3	98%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	98105-3	<0.05 || <0.05	LCS-W3	84%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	98105-3	3 || [N/T]	LCS-W3	96%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	98105-3	14 || [N/T]	LCS-W3	88%
Iron-Dissolved	µg/L	10	Metals-022 ICP-MS	<10	98105-3	<10 || [N/T]	LCS-W3	91%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			26/09/2013	98105-1	28/09/2013 || 28/09/2013	LCS-W1	26/09/2013
Date analysed	-			26/09/2013	98105-1	28/09/2013 || 28/09/2013	LCS-W1	26/09/2013
pH	pH Units		Inorg-001	[NT]	98105-1	8.3 || 7.9 || RPD: 5	LCS-W1	101%
Total Suspended Solids	mg/L	5	Inorg-019	<5	98105-1	520 || [N/T]	LCS-W1	89%
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	98105-1	8200 || 7900 || RPD: 4	LCS-W1	107%
Electrical Conductivity	µS/cm	1	Inorg-002	<1	98105-1	11000 || 12000 || RPD: 9	LCS-W1	102%
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	98105-1	0.021 || 0.020 || RPD: 5	LCS-W1	100%
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	98105-1	0.007 || 0.007 || RPD: 0	LCS-W1	105%
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	98105-1	0.037 || 0.039 || RPD: 5	LCS-W1	94%
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	98105-1	0.086 || 0.087 || RPD: 1	LCS-W1	103%
Total Cyanide	mg/L	0.004	Inorg-013	<0.004	98105-1	<0.004 || <0.004	LCS-W1	91%
Free Cyanide in Water	mg/L	0.004	Inorg-013	<0.004	98105-1	<0.004 || <0.004	LCS-W1	98%
Weak Acid Dissociable Cyanide	mg/L	0.004	Inorg-083	<0.004	98105-1	<0.004 || <0.004	LCS-W1	98%

QUALITY CONTROL Ion Balance	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			27/09/2013	98105-1	27/09/2013 || 27/09/2013	LCS-W1	27/09/2013
Date analysed	-			27/09/2013	98105-1	27/09/2013 || 27/09/2013	LCS-W1	27/09/2013
Calcium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	98105-1	230 || 230 || RPD: 0	LCS-W1	100%
Potassium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	98105-1	7.6 || 7.6 || RPD: 0	LCS-W1	110%
Sodium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	98105-1	2300 || 2300 || RPD: 0	LCS-W1	100%
Magnesium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	98105-1	250 || 250 || RPD: 0	LCS-W1	96%
Hardness	mgCaCO3/L	3		3.0	98105-1	1600 || 1600 || RPD: 0	[NR]	[NR]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	98105-1	<5 || <5	[NR]	[NR]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	98105-1	370 || 360 || RPD: 3	[NR]	[NR]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	98105-1	<5 || <5	[NR]	[NR]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	98105-1	370 || 360 || RPD: 3	LCS-W1	109%
Sulphate, SO4	mg/L	1	Inorg-081	<1	98105-1	950 || 950 || RPD: 0	LCS-W1	96%
Chloride, Cl	mg/L	1	Inorg-081	<1	98105-1	3500 || 3700 || RPD: 6	LCS-W1	85%
Ionic Balance	%		Inorg-041	[NT]	98105-1	1.8 || 0.42 || RPD: 124	[NR]	[NR]

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	98105-5	27/09/2013
Date analysed	-	[NT]	[NT]	98105-5	27/09/2013
Arsenic-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Cadmium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Chromium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Copper-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Lead-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Mercury-Dissolved	µg/L	[NT]	[NT]	98105-5	77%
Nickel-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Zinc-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Iron-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	98105-2	26/09/2013
Date analysed	-	[NT]	[NT]	98105-2	26/09/2013
pH	pH Units	[NT]	[NT]	[NR]	[NR]
Total Suspended Solids	mg/L	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	[NT]	[NT]	[NR]	[NR]
Electrical Conductivity	µS/cm	[NT]	[NT]	[NR]	[NR]
Nitrate as N in water	mg/L	[NT]	[NT]	98105-2	80%
Nitrite as N in water	mg/L	[NT]	[NT]	98105-2	95%
Ammonia as N in water	mg/L	[NT]	[NT]	98105-2	118%
Phosphate as P in water	mg/L	[NT]	[NT]	98105-2	115%
Total Cyanide	mg/L	[NT]	[NT]	[NR]	[NR]
Free Cyanide in Water	mg/L	[NT]	[NT]	98105-2	100%
Weak Acid Dissociable Cyanide	mg/L	[NT]	[NT]	98105-2	92%

QUALITY CONTROL Ion Balance	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	98105-2	27/09/2013
Date analysed	-	[NT]	[NT]	98105-2	27/09/2013
Calcium - Dissolved	mg/L	[NT]	[NT]	98105-2	#
Potassium - Dissolved	mg/L	[NT]	[NT]	98105-2	#
Sodium - Dissolved	mg/L	[NT]	[NT]	98105-2	#
Magnesium - Dissolved	mg/L	[NT]	[NT]	98105-2	#
Hardness	mgCaCO3/L	[NT]	[NT]	[NR]	[NR]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Carbonate Alkalinity as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Total Alkalinity as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4	mg/L	[NT]	[NT]	[NR]	[NR]
Chloride, Cl	mg/L	[NT]	[NT]	[NR]	[NR]
Ionic Balance	%	[NT]	[NT]	[NR]	[NR]

Report Comments:

ION_BALANCE: # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Total Dissolved Solids may be exaggerated due to colloids present in sample

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.