



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

# Tomingley Gold Project

## Monthly Environmental Monitoring Report – November 2013



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Revision Number	Revision Date	Prepared By	Comments
Revision 1	November 2013	Mark Williams	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 November 2013.

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

## 2. WEATHER FOR NOVEMBER 2013

### 2.1 WEATHER STATION DATA

Data from the weather station located on site is presented below.

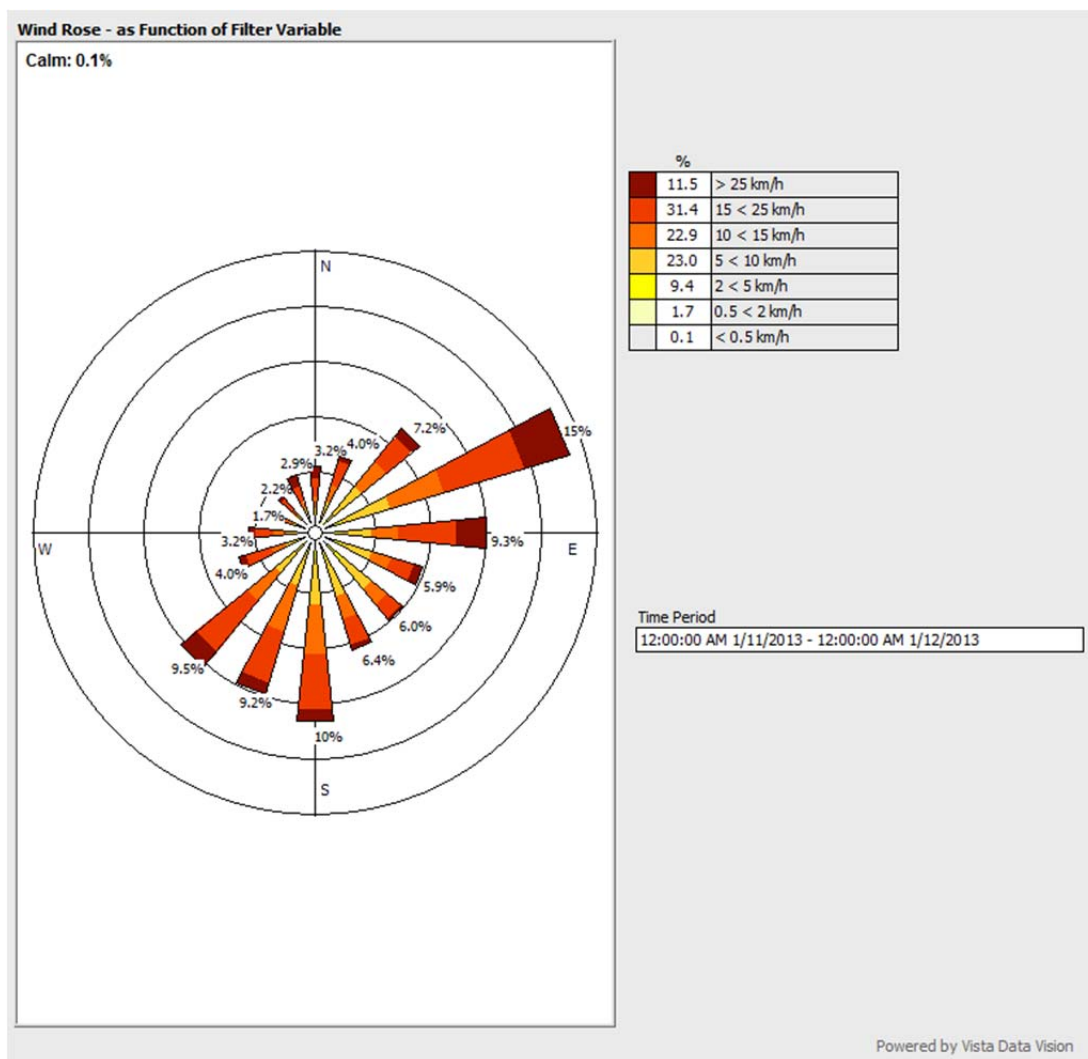


Figure 1. November 2013 wind station data.

**RAINFALL**

Table 1. November 2013 rainfall data

<i>November</i>	
<i>8/11/2013</i>	9.2 mm
<i>11/11/2013</i>	32.2 mm
<i>21/11/2013</i>	2.4 mm
<i>29/11/2013</i>	0.4 mm
<i>Total</i>	44.2 mm

### 3. MONITORING LOCATIONS

Figure 2 indicates the location of where monitoring is undertaken for the project. Any additional monitoring undertaken will be discussed within the body of this report.

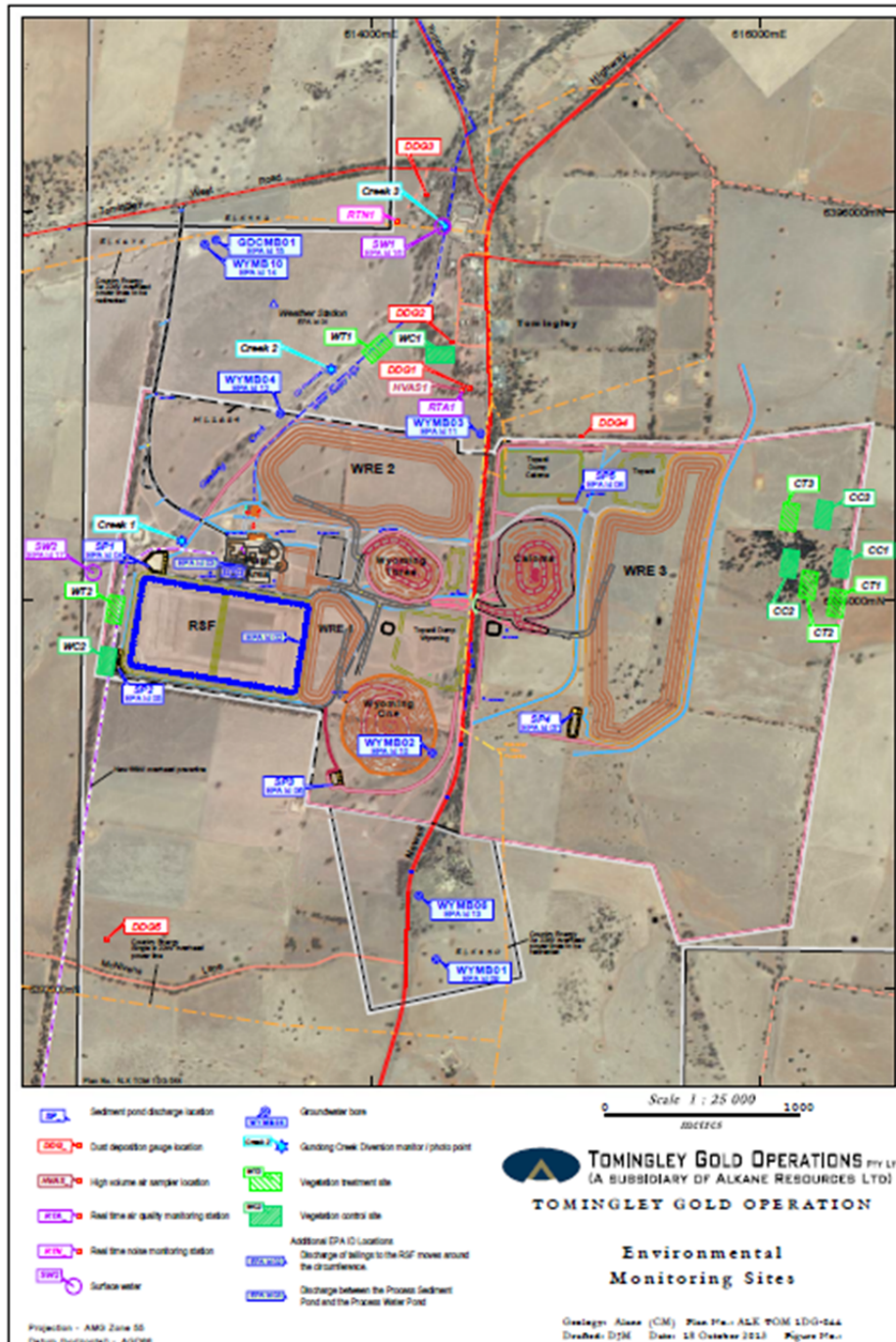


Figure 2 – Monitoring Locations

## 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<sup>3</sup> and a 24-Hour Average of 50ug/m<sup>3</sup>.

Table 2. - November 2013 PM10 air quality monitoring summary.

	Air quality (ug/m3)
Min	-33.6
Minimum Date	12/11/2013 16:00
Maximum	356.9
Maximum Date	29/11/2013 00:00
Average	29.8
Number	720
Data[%]	100
STD	38.3

The 24-Hour Average for November was 29.8 ug/m<sup>3</sup>. Data presented in Appendix 1.

### 4.2 DEPOSITIONAL DUST

Depositional Dust monitoring undertaken during November 2013 returned the results indicated in Table 3 below.

Table 3 – November 2013 Deposited Dust results.

Location	Date Monitored	Insoluble solids (g/m2/month)	Comments	Maximum increase in deposited dust level	Maximum total deposited dust level
DDG1	04/11/13 - 05/12/13	2.1		2 g/m2/month	4 g/m2/month
DDG2	04/11/13 - 05/12/13	7.1			
DDG3	04/11/13 - 05/12/13	1.4			
DDG4	04/11/13 - 05/12/13	3.3			
DDG5	04/11/13 - 05/12/13	1.3			

### 4.3 HIGH VOLUME AIR SAMPLER - TOTAL SUSPENDED PARTICULATES

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

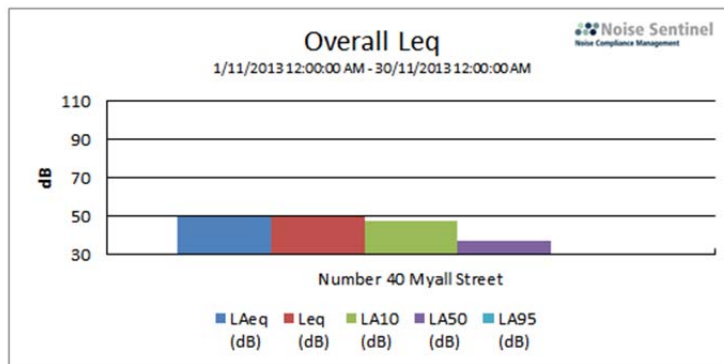
The performance criteria for TSP is averaged over 12 months, however data collected to date is below the 90mg/m3 average criteria.

Table 4 – High Volume Air Sampler Data for November 2013

Location	Sheet ID	Date On	Date Off	Results (TSP mg/m3)	Performance Criteria (Annual Average)
HVAS1	8832664	17/11/2013	18/11/2013	33.9	90 mg/m3
HVAS1	8832664	22/11/2013	23/11/2013	160	
HVAS1	8832664	30/11/2013	01/12/13	55.1	

## 5. NOISE MONITORING

### 5.1 REAL-TIME NOISE MONITORING



#### Overall Data

Location	Start Time	End Time	Activity	Leq (dB)	L <sub>Aeq</sub> (dB)	L <sub>AMin</sub> (dB)	L <sub>A10</sub> (dB)	L <sub>A50</sub> (dB)	L <sub>A95</sub> (dB)
Number 40 Myall Street	1/11 12:00:00 AM	30/11 12:00:00 AM	100%	49.8	49.8	21.3	47.7	36.8	25.8

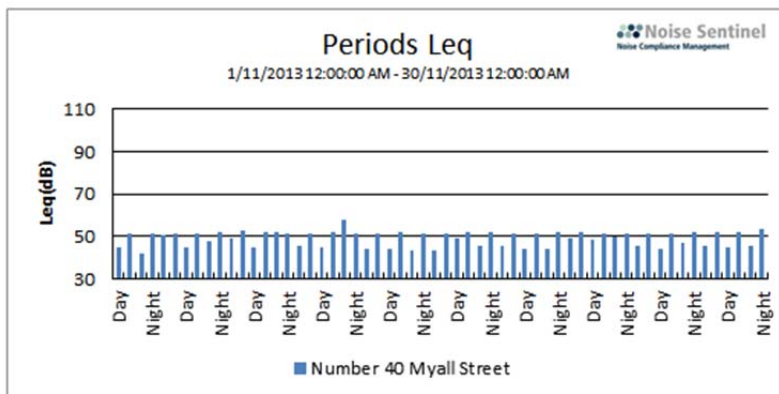


Figure 3 – Real Time Noise Monitoring



## 5.2 HAND HELD NOISE MONITORING

No hand held monitoring was carried out during November

## 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

There was no discharge from the sedimentation ponds during November 2013, accordingly no monitoring was carried out.

## 7. GROUNDWATER MONITORING

Groundwater monitoring is carried out quarterly.

Ground water monitoring was carried out on 10 December 2013.

Table 5. Ground water monitoring results.

Parameter	unit	WYMB01 (EPA09)	WYMB03 (EPA11)	WYMB04 (EPA12)	WYMB06 (EPA 13)	WYMB10 (EPA14)	GDCMB01 (EPA 15)	WYMB02
Alkalinity (as calcium carbonate)	milligrams per litre	331	1110	986	1190	938	57	1040
Ammonia	milligrams per litre							
Arsenic	milligrams per litre	0.002			0.019			0.003
Bicarbonate	milligrams per litre	331	1110	986	1190	938	57	1040
Cadmium	milligrams per litre	<0.0001			<0.0001			<0.0001
Calcium (dissolved)	milligrams per litre	220	114	257	137	186	<1	141
Carbonate	milligrams per litre	<1	<1	<1	<1	<1	<1	<1
Chloride	milligrams per litre	3370	5640	7330	2780	7650	61	6100
Chromium	milligrams per litre							
Copper	milligrams per litre	<0.001			0.002			<0.001
Cyanide (free)	milligrams per litre	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cyanide (total)	milligrams per litre							
Cyanide (weak acid dissociable)	milligrams per litre	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Electrical Conductivity	microsiemens per centimetre	12400	21800	28200	13700	29600	480	23700
Hardness (as calcium carbonate)	milligrams per litre							
Lead	milligrams per litre	0.003			0.001			<0.001

Magnesium (dissolved)	milligrams per litre	240	515	710	318	618	1	485
Mercury	milligrams per litre							
Nickel	milligrams per litre	0.002			0.022			<0.001
Nitrate	milligrams per litre	0.59	0.03	0.3	0.33	0.81	16.2	0.73
pH	pH	7.51	7.67	7.36	7.46	7.39	6.91	7.68
Total Phosphorus as P	milligrams per litre	0.07	0.08	<0.05	0.03	<0.05	0.18	<0.05
Potassium (dissolved)	milligrams per litre	7	16	19	7	24	1	11
Sodium (dissolved)	milligrams per litre	1980	4440	5240	2420	6090	89	4820
Standing Water Level	metres							
Sulfate	milligrams per litre	923	2090	2400	2180	3100	19	1920
Total dissolved solids	milligrams per litre							
Total Iron	milligrams per litre							
Total suspended solids	milligrams per litre	<5	28	24	30	14	16	35
Zinc	milligrams per litre	0.036			0.046			0.022

## 8. BIODIVERSITY MONITORING

There was no vegetation monitoring undertaken during November 2013.

There were no fauna deaths recorded during November 2013.

Tree clearing was carried out on 3 November 2013 at three locations within the mine footprint area. One Eastern Rosella was taken to Taronga Western Plains Zoo for hand rearing.

# Appendix 1

## Real Time Air Quality Monitoring Data for PM10

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Site Report - Site Tomingley Gold Report : TimeBeginning	
Date&Time	PM10
	ug/m3
01/11/2013 00:00	12.9
02/11/2013 00:00	14.2
03/11/2013 00:00	14.1
04/11/2013 00:00	30.1
05/11/2013 00:00	52.8
06/11/2013 00:00	44.9
07/11/2013 00:00	28.6
08/11/2013 00:00	25.3
09/11/2013 00:00	17.8
10/11/2013 00:00	18.5
11/11/2013 00:00	9
12/11/2013 00:00	2.6
13/11/2013 00:00	20.1
14/11/2013 00:00	19.3
15/11/2013 00:00	19.2
16/11/2013 00:00	18.6
17/11/2013 00:00	8
18/11/2013 00:00	8.5
19/11/2013 01:00	6.7
20/11/2013 00:00	52.1
21/11/2013 00:00	56.5
22/11/2013 00:00	19.9
23/11/2013 00:00	17.7
24/11/2013 00:00	18.4
25/11/2013 00:00	26.5
26/11/2013 00:00	5.6
27/11/2013 00:00	46.2
28/11/2013 00:00	15.1
29/11/2013 00:00	356.9
30/11/2013 00:00	18.2
<b>Min</b>	-33.6
<b>MinDate</b>	12/11/2013 16:00
<b>Maximum</b>	356.9
<b>MaxDate</b>	29/11/2013 00:00
<b>Avg</b>	29.8
<b>Num</b>	720
<b>Data[%]</b>	100
<b>STD</b>	38.3