



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

# Tomingley Gold Project

## Monthly Environmental Monitoring Report – December 2015



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### TABLE OF REVISIONS

Revision Number	Revision Date	Prepared By	Comments
Revision 1		CH	Submitted for Information

<b>1.</b>	<b>INTRODUCTION AND SCOPE .....</b>	<b>4</b>
<b>2.</b>	<b>WEATHER FOR NOVEMBER 2015.....</b>	<b>4</b>
2.1	WEATHER STATION DATA.....	4
	TGO WEATHER DATA IS PRESENTED BELOW. ....	4
<b>3.</b>	<b>MONITORING LOCATIONS.....</b>	<b>6</b>
	<b>FIGURE 3 INDICATES THE LOCATION OF WHERE MONITORING IS UNDERTAKEN FOR THE PROJECT. ANY ADDITIONAL MONITORING UNDERTAKEN WILL BE DISCUSSED WITHIN THE BODY OF THIS REPORT. ....</b>	<b>6</b>
<b>4.</b>	<b>AIR QUALITY MONITORING.....</b>	<b>7</b>
4.1	PM10 MONITORING .....	7
4.2	DEPOSITIONAL DUST.....	9
4.3	HIGH VOLUME AIR SAMPLER - TOTAL SUSPENDED PARTICULATES.....	9
<b>5.</b>	<b>NOISE MONITORING.....</b>	<b>10</b>
5.1	REAL-TIME NOISE MONITORING .....	10
<b>6.</b>	<b>SURFACE WATER MONITORING .....</b>	<b>11</b>
6.1	GUNDONG CREEK.....	11
6.2	SEDIMENTATION PONDS.....	11
<b>7.</b>	<b>GROUNDWATER MONITORING.....</b>	<b>11</b>
	GROUND WATER MONITORING OCCURS QUARTERLY WITH THE NEXT ROUND OF SAMPLING BEING UNDERTAKEN DURING EARLY DECEMBER.. <b>ERROR! BOOKMARK NOT DEFINED.</b>	
<b>8.</b>	<b>BLAST MONITORING .....</b>	<b>11</b>
<b>9.</b>	<b>RESIDUE STORAGE FACILITY .....</b>	<b>12</b>
<b>10.</b>	<b>BIODIVERSITY MONITORING .....</b>	<b>12</b>

# 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 December 2015.

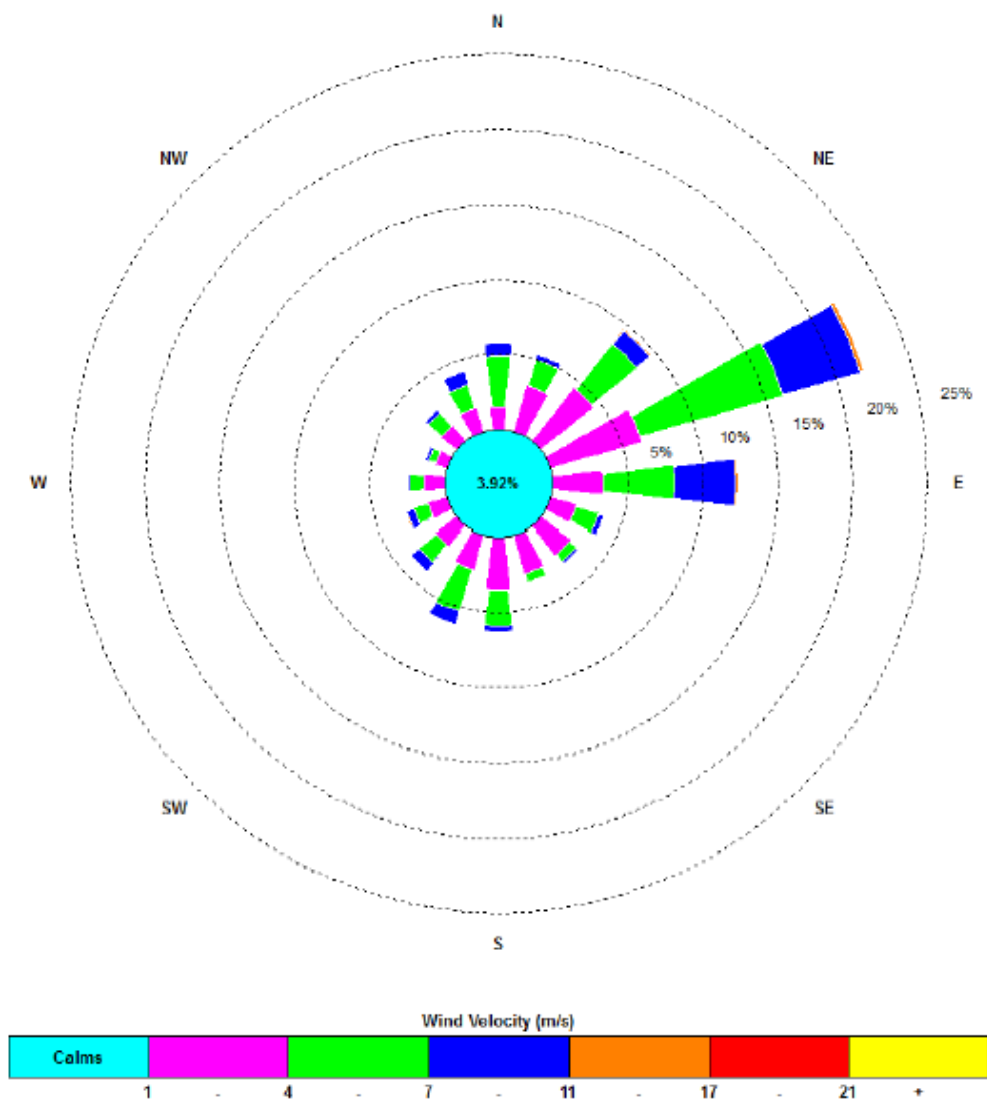
This report also compares data collected to targets and provides commentary on environmental issues during the month.

# 2. WEATHER FOR NOVEMBER 2015

## 2.1 WEATHER STATION DATA

TGO weather data is presented below.

Figure 1 December 2015 Wind rose



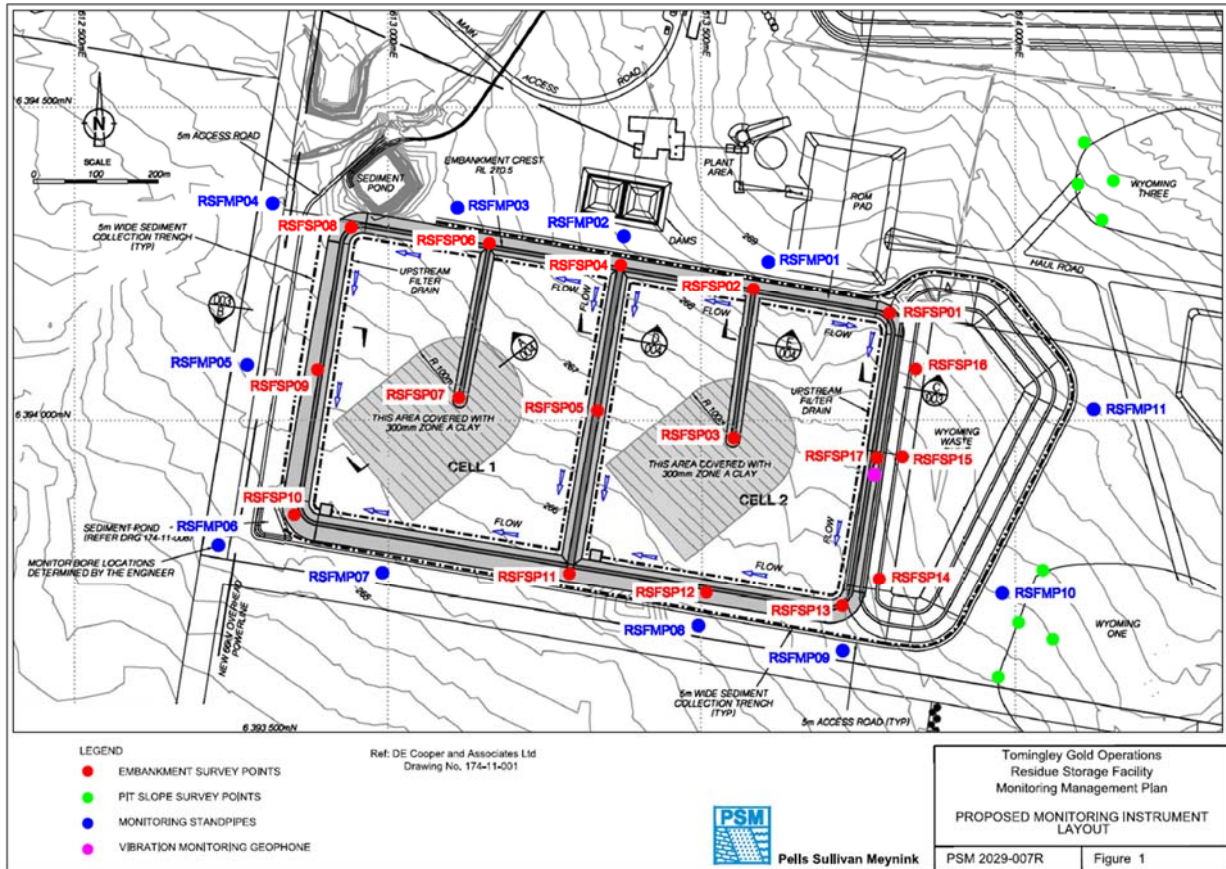
**Figure 2 Rainfall December2015**

<b>December 2015</b>	<b>Rainfall (mm)</b>
<b>01.12.2015</b>	0.6
<b>03.12.2015</b>	0.2
<b>08.12.2015</b>	7
<b>09.12.2015</b>	2
<b>21.12.2015</b>	1.4
<b>22.12.2015</b>	5.2
<b>26.12.2015</b>	22.4
<b>Total</b>	38.8



Figure 4 indicates the location of environmental and survey monitoring points on and around the Residue Storage Facility.

Figure 4 Residue Storage Facility monitoring points



## 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>. The 24 Hour Average was not exceeded on any occasion this month despite low rainfall and warm weather conditions.



Figure 5 TEOM Data December 2015

Date	24 Hr Averages	Running Average	Comment
	(µg/m3)		
1/12/2015	48.1	20.0	
2/12/2015	29.3	20.1	
3/12/2015	27.6	20.1	
4/12/2015	16.7	20.1	
5/12/2015	21.1	20.2	
6/12/2015	17.0	20.2	
7/12/2015	29.8	20.2	
8/12/2015	38.8	20.3	
9/12/2015	10.5	20.3	1 hr avg data used
10/12/2015	20.3	20.3	
11/12/2015	42.9	20.4	
12/12/2015	34.7	20.4	
13/12/2015	29.6	20.5	
14/12/2015	27.4	20.5	
15/12/2015	31.9	20.5	
16/12/2015	29.4	20.5	
17/12/2015	16.6	20.4	
18/12/2015	22.5	20.3	
19/12/2015	16.6	20.2	
20/12/2015	37.4	20.2	
21/12/2015	32.0	20.2	
22/12/2015	3.8	20.2	
23/12/2015	5.8	20.1	
24/12/2015	9.9	20.1	
25/12/2015	10.8	20.2	
26/12/2015	10.6	20.1	
27/12/2015	11.9	20.1	
28/12/2015	10.2	20.1	
29/12/2015	11.8	20.1	
30/12/2015	12.2	20.0	
31/12/2015	14.3	20.0	
<b>Average</b>	<b>22.0</b>		
	<b>24 Hour criteria exceedance</b>		



## 4.2 DEPOSITIONAL DUST

Depositional Dust monitoring undertaken during this month returned the results indicated in the table below. The performance criteria for deposited dust is averaged over 12 months.

**Figure 6 Dust Deposition Results November 2015**

Location	Date Monitored	Insoluble solids (g/m <sup>2</sup> /month)	Maximum increase in deposited dust level
DDG1	2/11/2015–01/12/2015	1.2	The greatest increase in deposited dust level was recorded at DDG5; an increase of 13.3 g/m <sup>2</sup> /month. This increase is due to a large number of dead bugs being present in the sample which contribute to overall weight.
DDG2	2/11/2015–01/12/2015	1.6	
DDG3	2/11/2015–01/12/2015	1.6	
DDG4	2/11/2015–01/12/2015	1.9	
DDG5	2/11/2015–01/12/2015	15.3	

## 4.3 HIGH VOLUME AIR SAMPLER - TOTAL SUSPENDED PARTICULATES

High Volume Air Sampling (HVAS) for Total Suspended Particulates (TSP) was undertaken this month. Table 4 below provides the results.

The performance criteria for TSP is averaged over 12 months

**Figure 7 Hi-Volume Air Sampler Data November 2015**

Location	Sheet ID	Sample Date	Results (TSP µg/m <sup>3</sup> )	Performance Criteria (Annual Average)
HVAS1	9168740	04-Nov-15	18.8	90 µg/m <sup>3</sup> .
HVAS1	9154580	10-Nov-15	36.1	
HVAS1	9154582	16-Nov-15	30.6	
HVAS1	9154583	22-Nov-15	64.1	
HVAS1	9154584	28-Nov-15	122	



## 6. SURFACE WATER MONITORING

### 6.1 GUNDONG CREEK

Gundong Creek did not flow over the course of December and as such no samples were taken.

### 6.2 SEDIMENTATION PONDS

No discharge and associated water testing occurred this month.

## 7. GROUNDWATER MONITORING

Groundwater monitoring was undertaken in December as required with no concerning results recorded.

## 8. BLAST MONITORING

Blasts are carried out in all open cut pits and vibration and decibels are monitored from several locations. Below are the vibration results recorded from the monitors at Harts Cottage and Tomingley Village.

**Figure 10 Blast Monitoring**

EventKey	Event	Date/Time	Max R (m/s)	Location
66793	TMG08T	23/12/2015 13:09	0.18	Harts Cottage
66792	TMG08S	23/12/2015 12:58	0.42	Harts Cottage
66582	TMG08R	14/12/2015 12:59	0.34	Harts Cottage
66495	TMG08Q	10/12/2015 12:58	0.15	Harts Cottage
66396	TMG08P	8/12/2015 12:59	0.36	Harts Cottage
66214	TMG08N	3/12/2015 14:02	0.34	Harts Cottage
66793	TMG08T	23/12/2015 13:09	0.21	Tomingley Village
66792	TMG08S	23/12/2015 12:58	0.65	Tomingley Village
66582	TMG08R	14/12/2015 12:59	0.47	Tomingley Village
66495	TMG08Q	10/12/2015 12:58	0.23	Tomingley Village
66396	TMG08P	8/12/2015 12:59	0.84	Tomingley Village
66214	TMG08N	3/12/2015 14:02	0.6	Tomingley Village

## 9. RESIDUE STORAGE FACILITY

Residue from the processing plant is discharged into the Residue Storage Facility or RSF. The Environmental Protection Licences dictates that the Weak Acid Dissociable (WAD) Cyanide found in this residue must be less than 20 milligrams per litre for 90% of the time and less than 30 milligrams per litre for 100% of the time.

The WAD results for November 2015 are:

- Monthly average: 2.59 ppm
- Daily maximum: 8.66 ppm on 2<sup>nd</sup> Nov.
- Daily minimum: 0.70 ppm on 20<sup>th</sup> Nov.
- Number of exceedances: zero

## 10. BIODIVERSITY MONITORING

- Fauna deaths:
  - There were no fauna deaths in the RSF for the month.
- Native fauna sightings:
  - On site fauna sightings for December included:
    - 23<sup>th</sup> December, unknown species of turtle was spotted in sediment basin 4.
    - 16<sup>th</sup> December, 1 Bearded Dragon on adjacent to site administration offices.
    - Regularly throughout December a number of Grey Crowned Babblers *Pomatostomus temporalis* were seen in the tree corridor to the South of the RSF.
- Vertebrate pests:
  - A feral cat trapping program will commence in January.