

## **TOMINGLEY GOLD PROJECT**

# **Monthly Environmental Monitoring Report**

## **December 2017**

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### Document History

DATE	VERSION	REASON FOR CHANGE	AUTHOR
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# 1. Introduction and Scope

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This Monthly Environmental Monitoring Report has been prepared to collate environmental monitoring data undertaken for the Tomingley Gold Project during the month of December 2017.

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

## 2. Weather for December 2017

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### A. Weather Station Data

TGO WEATHER DATA IS PRESENTED BELOW.

Figure 1. December 2017 wind rose

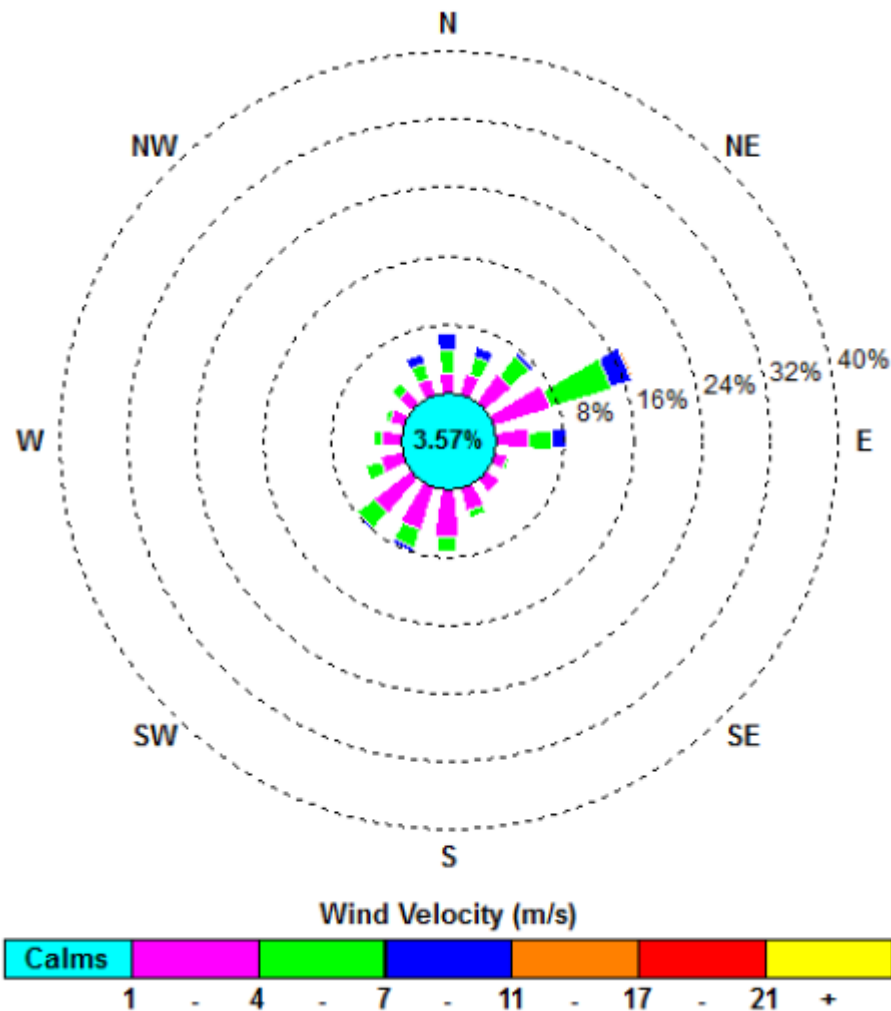


Figure 2. Rainfall December 2017

<b>December 2017</b>	<b>Rainfall (mm)</b>
<b>December 1</b>	5.4
<b>December 2</b>	104.8
<b>December 3</b>	0.6
<b>December 20</b>	0.2
<b>December 29</b>	2
<b>December 30</b>	12.4
<b>Total Rainfall</b>	125.4

### 3. Monitoring Locations

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.

Figure 3. TGO water and vegetation monitoring points

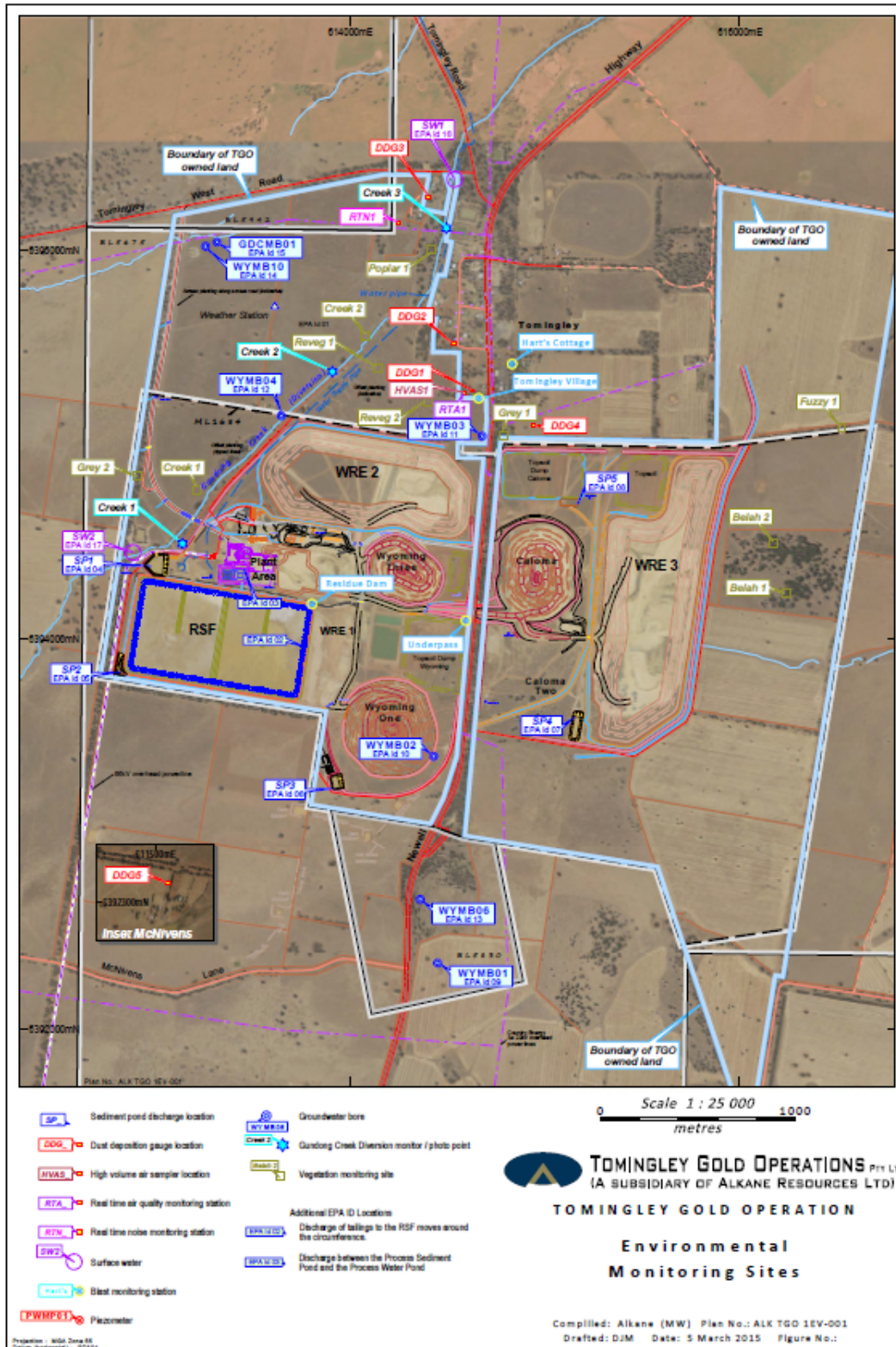
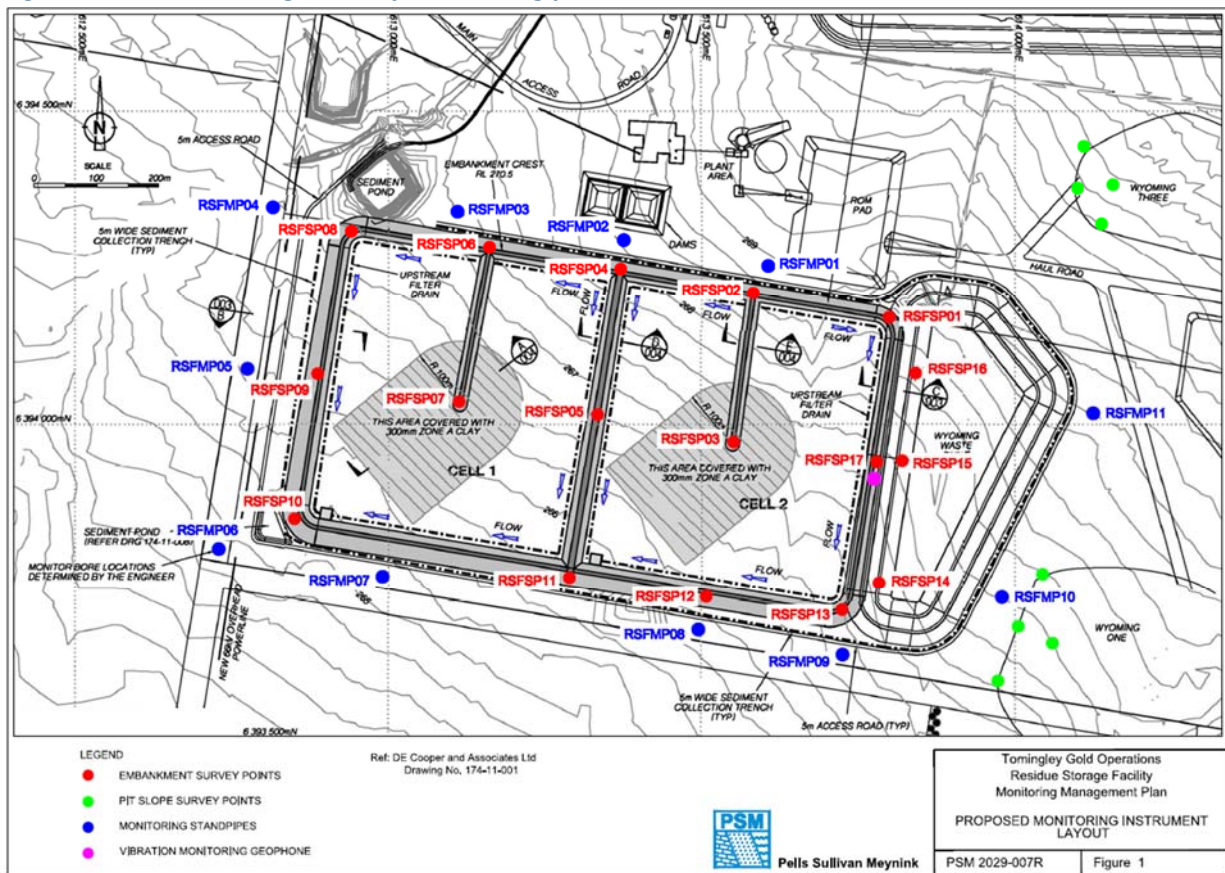


Figure 4 indicates the location of environmental and survey monitoring points on and around the Residue Storage Facility.

**Figure 4. Residue Storage Facility monitoring points**



## 4. Air Quality Monitoring

### A. 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 annual average at the end of September was 19.9ug/m<sup>3</sup>, well below the license limit.



Figure 5. TEOM Data December 2017

Date	24 Hr Averages	Running Average	Comment
	(µg/m <sup>3</sup> )		
1/12/2017	17.5	19.8	1 hour average data used
2/12/2017	5.9	19.7	
3/12/2017	7.3	19.6	
4/12/2017	10.4	19.6	
5/12/2017	10.1	19.5	
6/12/2017	9.9	19.5	
7/12/2017	24.9	19.6	
8/12/2017	23.7	19.5	
9/12/2017	21.8	19.5	
10/12/2017	16.2	19.5	
11/12/2017	18.2	19.4	
12/12/2017	20.4	19.4	
13/12/2017	26.7	19.4	
14/12/2017	33.8	19.4	
15/12/2017	29.5	19.5	
16/12/2017	21.0	19.5	
17/12/2017	34.2	19.6	
18/12/2017	27.2	19.6	1 hour average data used
19/12/2017	27.5	19.6	
20/12/2017	46.2	19.7	
21/12/2017	27.6	19.7	
22/12/2017	16.3	19.7	
23/12/2017	20.1	19.7	
24/12/2017	25.0	19.7	
25/12/2017	34.2	19.8	
26/12/2017	18.0	19.8	
27/12/2017	13.0	19.8	
28/12/2017	17.4	19.8	1 hour average data used
29/12/2017	28.0	19.9	
30/12/2017	15.9	19.9	1 hour average data used
31/12/2017	19.8	19.9	
<b>Average</b>	<b>21.5</b>		
	<b>24 Hour Criteria Exceedance</b>		

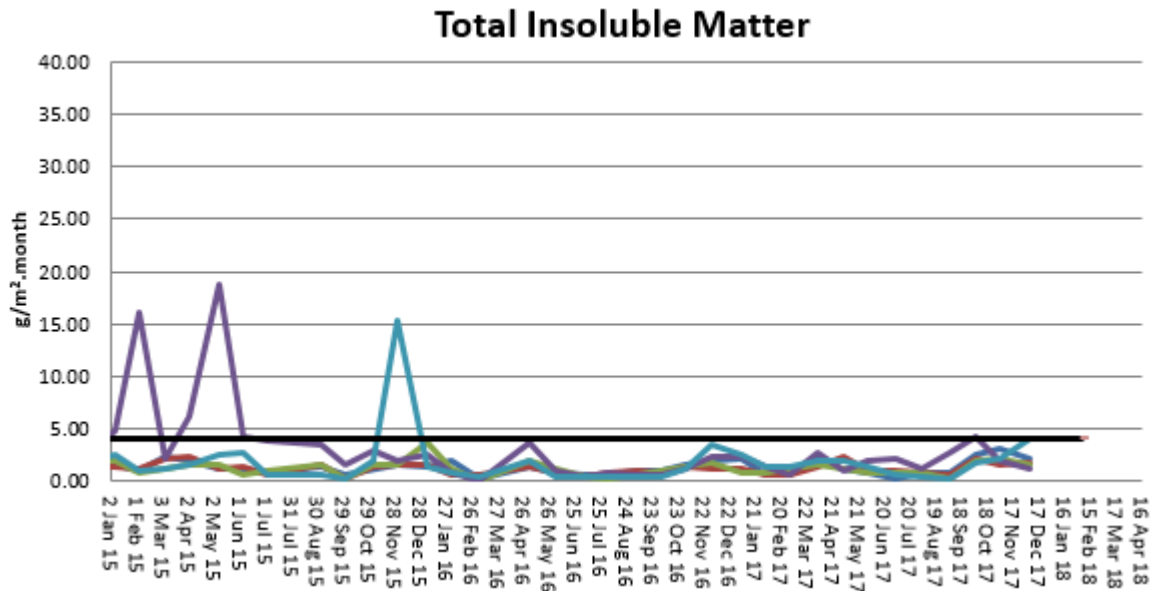
Note: For comparison purposes, highlighted results indicate levels above the EPA and NEPM 24-hour maximum criteria for PM<sub>10</sub>



## B. 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 2015 - 2017**

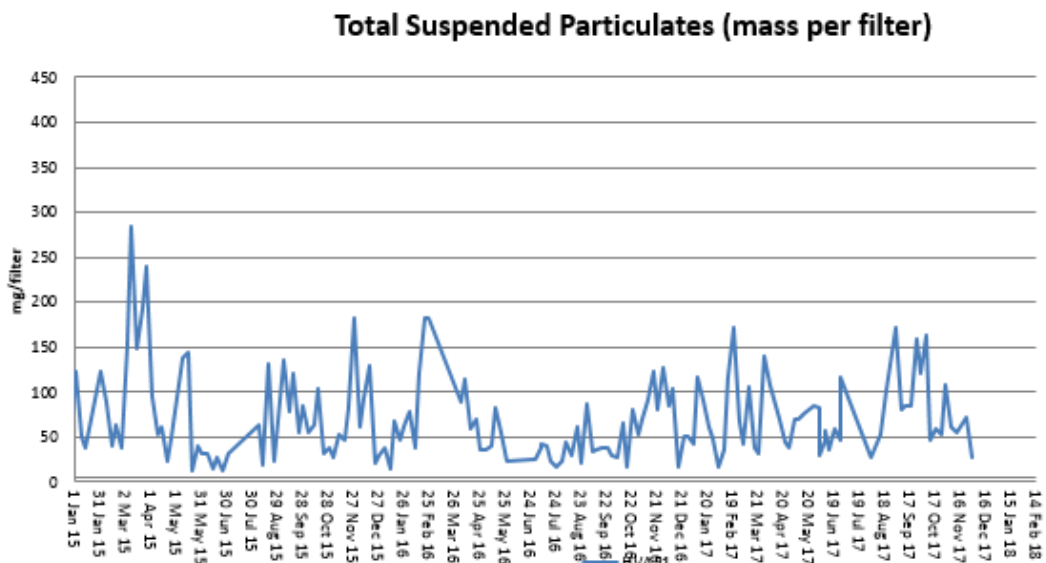


## C. High Volume Air Sampler - Total Suspended Particulates

High Volume Air Sampling (HVAS) for Total Suspended Particulates (TSP) was undertaken this month. Figure 7 below provides the results.

The performance criteria for TSP is averaged over 12 months

**Figure 7. Hi-Volume Air Sampler Data 2015 - 2017**



## 5. Noise Monitoring

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### A. Real-Time Noise Monitoring

Real-time noise monitoring data showed no exceedances during the month of December.

## 6. Surface Water Monitoring

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### A. Gundong Creek

Gundong Creek flowed for a number of days during December and the water was samples at both license locations.

### B. Sedimentation Ponds

Following over 100mm of rainfall on 2 December, Sediment Basin 1 discharged from the spillway for approximately 18hours over the period of 2-3 December.

The EPA, other relevant authorities and neighbouring landowners were informed and the site Pollution Incident Response Management Plan was followed.

## 7. Groundwater Monitoring

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Groundwater was undertaken during December in line with license requirements.

Results from this round of monitoring fell within expected limits.

A further round of monitoring is scheduled in for March.

## 8. Blast Monitoring

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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 Hart's Cottage and Tomingley Village.

**Figure 8. Blast Monitoring**

EventKey	Date/Time	Max R (mm/s)	Location
82544	1/12/2017 13:05	0.1	Harts Cottage
82544	1/12/2017 13:05	0.1	Tomingley Village
82649	4/12/2017 14:05	0.13	Harts Cottage
82649	4/12/2017 14:05	0.15	Tomingley Village
82733	6/12/2017 14:24	0.11	Harts Cottage
82733	6/12/2017 14:24	0.1	Tomingley Village
82854	8/12/2017 14:05	0.08	Harts Cottage
82854	8/12/2017 14:05	0.11	Tomingley Village
83021	11/12/2017 13:57	0.04	Harts Cottage
83021	11/12/2017 13:57	0.06	Tomingley Village
83066	12/12/2017 13:01	0.07	Harts Cottage
83066	12/12/2017 13:01	0.09	Tomingley Village
83181	15/12/2017 14:01	0.12	Harts Cottage
83181	15/12/2017 14:01	0.11	Tomingley Village
83197	16/12/2017 12:58	0.05	Harts Cottage
83197	16/12/2017 12:58	0.05	Tomingley Village
83298	19/12/2017 13:54	0.07	Harts Cottage
83298	19/12/2017 13:54	0.1	Tomingley Village
83398	22/12/2017 11:02	0.09	Harts Cottage
83398	22/12/2017 11:02	0.1	Tomingley Village
83516	30/12/2017 13:12	0.06	Harts Cottage
83516	30/12/2017 13:12	0.07	Tomingley Village

## 9. Residue Storage Facility

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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.

WAD cyanide discharge levels are shown below with the maximum reading well below the 100<sup>th</sup> percentile limit of 30ppm.

- Monthly average: 5.62 ppm
- Daily maximum: 11.16 ppm on 6<sup>th</sup> December
- Daily minimum: 3.12 ppm on 29<sup>th</sup> December
- Number of exceedances: zero

## 10. Biodiversity Monitoring

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### Fauna deaths:

- No fauna deaths were recorded during December.

### Vertebrate pests

- A program of trapping feral cats and foxes has continued with no feral cats being captured during December.