TOMINGLEY
GOLD OPERATIONS PTY LTD
(A wholly owned subsidiary of Alkane Resources Ltd)
ABN 53 149 040 371

TOMINGLEY GOLD PROJECT

Monthly Environmental Monitoring Report

November 2019

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Document History

DATE	VERSION	REASON FOR CHANGE	AUTHOR
	Rev 1	Submitted for Information	CH

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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 2019.

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

2. Weather for November 2019

A. Weather Station Data

TGO WEATHER DATA IS PRESENTED BELOW.

Figure 1. November 2019 wind rose

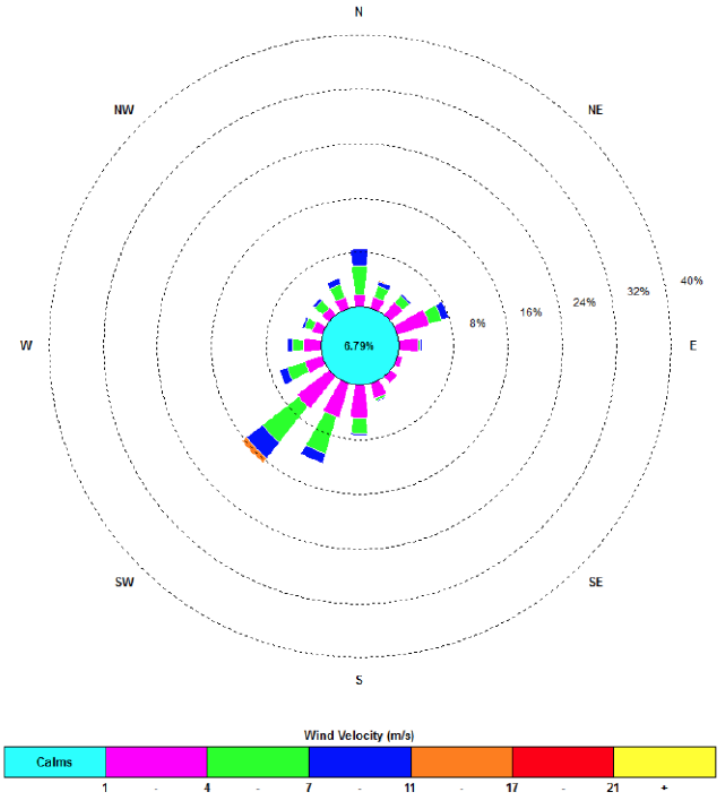


Figure 2. Rainfall November 2019

November 2019	Rainfall (mm)
Total Rainfall	48.8

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

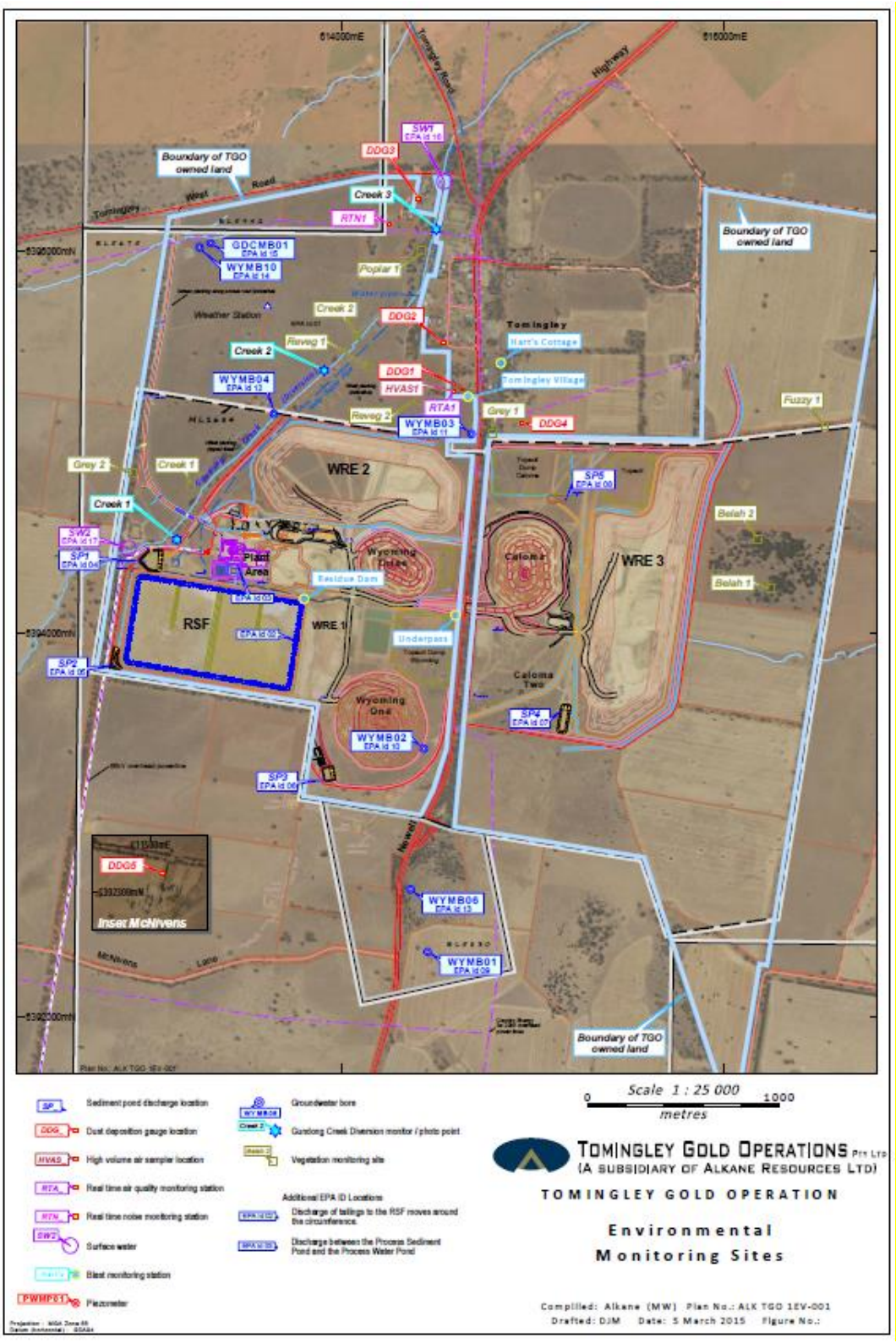
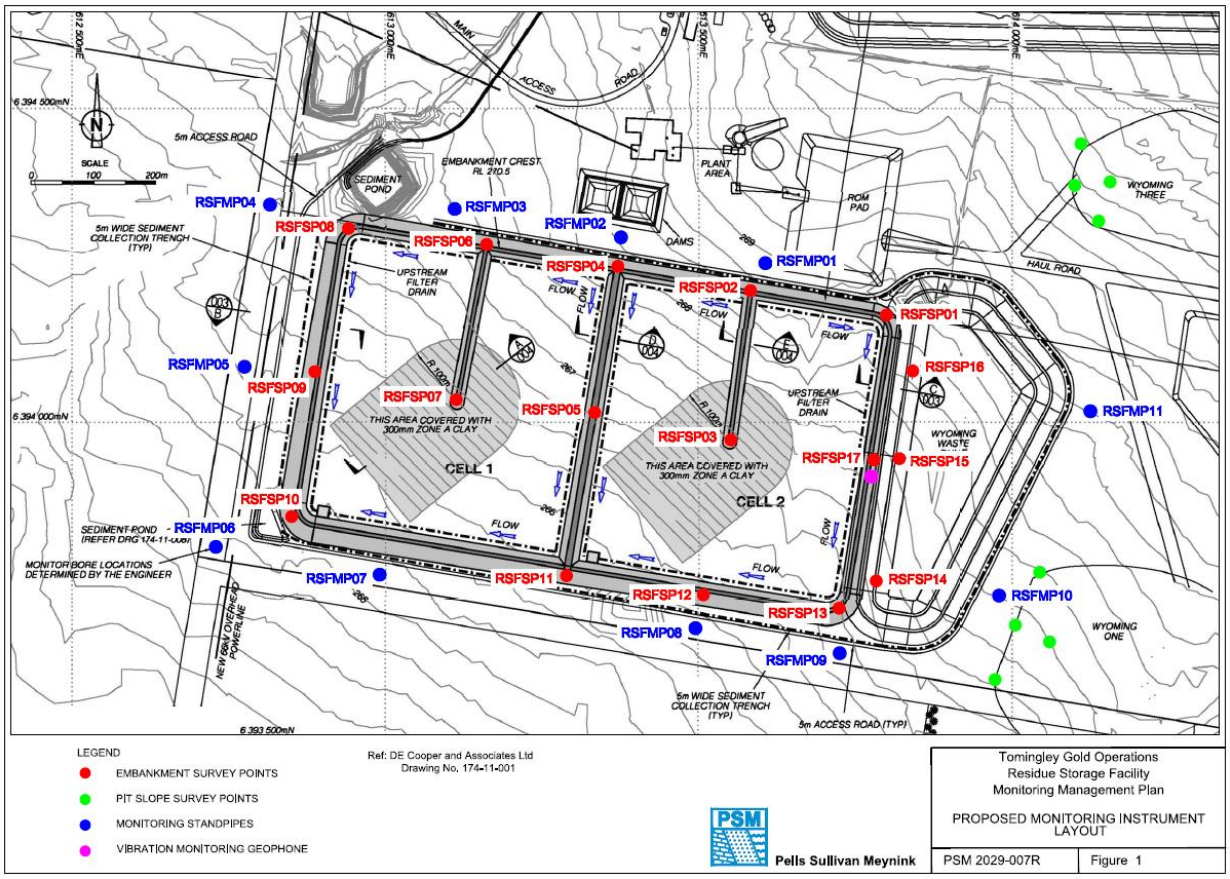


Figure 4 indicates the location of environmental and survey monitoring points on and around the Residue Storage Facility.

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^3 and a 24-Hour Average of 50ug/m^3.

The current annual average of all PM10 data at the end of November was 38.1ug/m^3, above the Approval limit. This average has been calculated using all recorded data which includes each of the numerous recent dust storms.

There were fourteen elevated readings recorded during November, recorded on the 1st, 2nd, 3rd, 8th, 12th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 29th and 30th. Following internal investigations, which included visual inspections and an assessment of prevailing wind direction during elevated days, it was concluded that the anomalous readings were the result of numerous dust storms and smoke that have been impacting the district associated with the ongoing severe drought, high winds and the bushfires burning throughout NSW and were not generated by the project.

Figure 5. TEOM Data November 2019

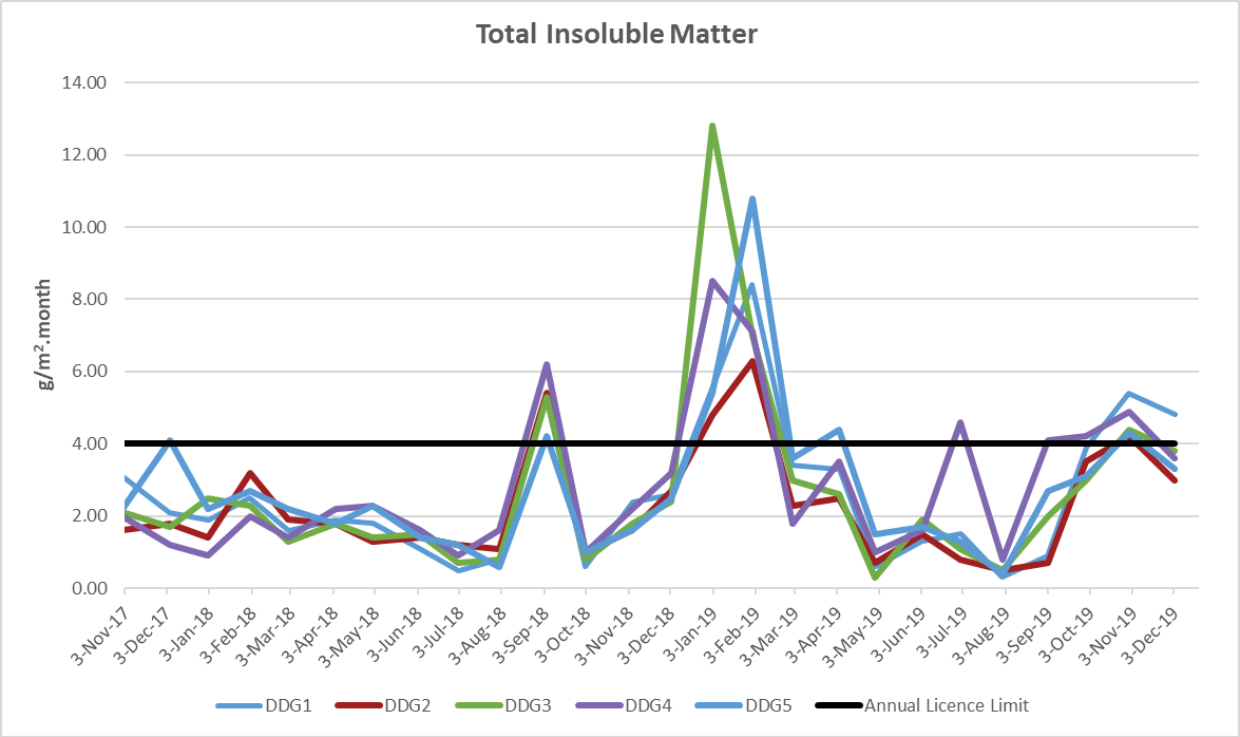
Date	24-hour Average	Running Average	Comment/s
	(µg/m3)		
1/11/2019	56.8	32.7	
2/11/2019	245.3	33.1	
3/11/2019	74.4	33.2	Recalc using 1hr average data. 1hr of high negative data excluded
4/11/2019	11.7	33.2	Recalc using 1hr average data. 2hrs of high negative data excluded
5/11/2019	42.4	33.2	Recalc using 1hr average data. 2hrs of high negative data excluded
6/11/2019	16.4	33.2	Recalc using 1hr average data. 1hr of high negative data excluded
7/11/2019	27.6	33.3	
8/11/2019	140.9	33.6	
9/11/2019	32.8	33.7	Recalc using 1hr average data. 1hr of high negative data excluded
10/11/2019	23.7	33.7	
11/11/2019	18.3	33.7	Recalc using 1hr average data. 1hr of high negative data excluded
12/11/2019	225.0	34.3	Recalc using 1hr average data. 2hrs of machine outage data excluded due to quarterly calibration
13/11/2019	36.7	34.3	
14/11/2019	30.2	34.3	
15/11/2019	31.9	34.4	
16/11/2019	29.2	34.4	
17/11/2019	39.4	34.5	
18/11/2019	40.3	34.5	
19/11/2019	45.3	34.6	
20/11/2019	124.3	34.8	
21/11/2019	106.0	35.0	
22/11/2019	297.3	35.4	
23/11/2019	128.2	35.5	
24/11/2019	65.8	35.6	Recalc using 1hr average data. 3hrs of machine outage data excluded
25/11/2019	140.4	35.9	
26/11/2019	531.3	37.4	
27/11/2019	34.6	37.4	
28/11/2019	47.9	37.5	
29/11/2019	91.4	37.7	Recalc using 1hr average data. 1hr of high negative data excluded
30/11/2019	129.2	38.1	Recalc using 1hr average data. 1hr of high negative data excluded
Average	**95.5**		
	24 Hour Criteria Exceedance		

Note: For comparison purposes, yellow highlighted results indicate 24hr PM_{10} particulate levels above the NSWEPA and NEPM 24-hour maximum criteria.

B. Depositional Dust

Depositional Dust monitoring undertaken during this month returned the results indicated in the table below. The above average January results coincided with the increase of regional dust and dust storms due to ongoing drought conditions and were not generated by the project. All locations recorded lower results for November than October, however are still elevated and are a result of the ongoing dust storms caused by the severe drought conditions.

Figure 6. Dust Deposition Results 2017 – 2019

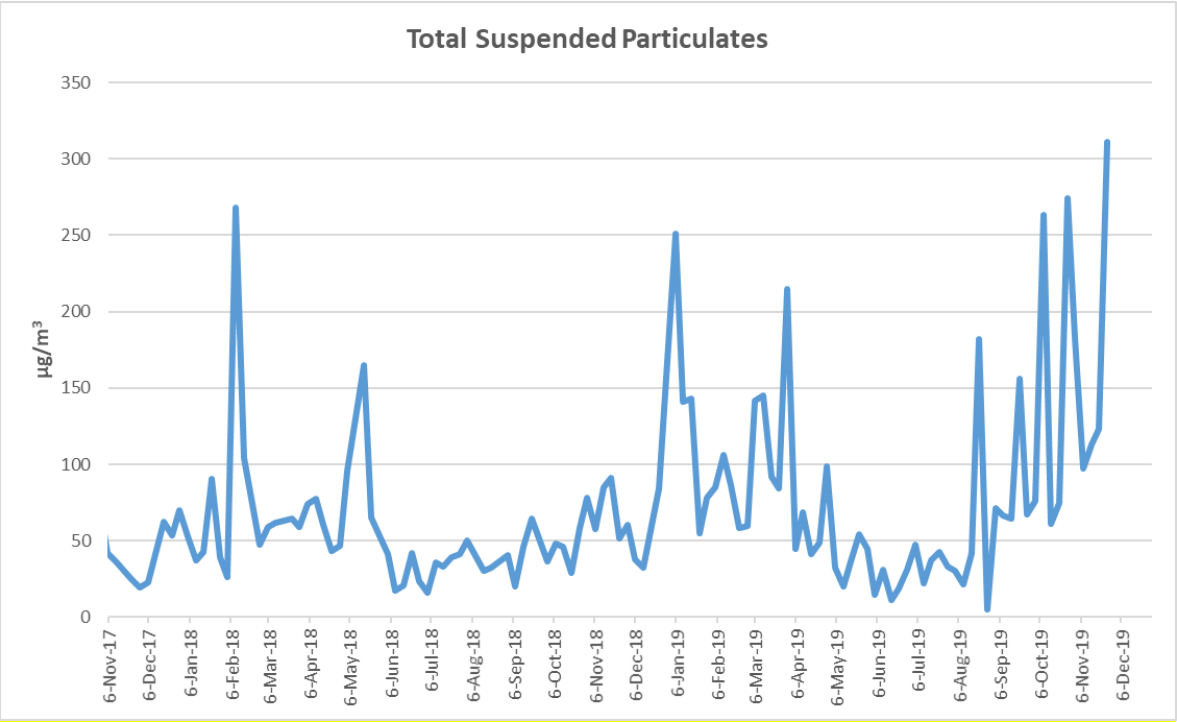


C. High Volume Air Sampler - Total Suspended Particulates

High Volume Air Sampling (HVAS) for Total Suspended Particulates (TSP) was undertaken this month. Figure 7 below provides the results. The above average results during November coincided with the occurrence of severe regional dust storms due to ongoing drought conditions and smoke in the area generated from the NSW bushfires, and were not generated by the project.

The performance criteria for TSP is averaged over 12 months.

Figure 7. Hi-Volume Air Sampler Data 2017 - 2019



5. Noise Monitoring

A. Real-Time Noise Monitoring

Real-time noise monitoring data showed no exceedances during the month of November. Full report provided separately on webpage.

6. Surface Water Monitoring

A. Gundong Creek

Gundong Creek did not flow during November and as such no samples were taken.

B. Sedimentation Ponds

No discharge was experienced from any of the sediment ponds during the month.

7. Groundwater Monitoring

Quarterly groundwater monitoring was undertaken during September in line with licence requirements.

Results from the monitoring fell within expected limits. The next round of monitoring is due December.

8. Blast Monitoring

Blasting is no longer carried out in the TGO open cut pits and vibration and decibels are monitored from several locations. Underground blasting commenced during January however since then the blasts recorded vibrations below the trigger for the site monitoring equipment.

In future, blasts that trigger the monitoring equipment will be recorded.

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.

WAD cyanide discharge levels are shown below with the maximum reading below the 100th percentile limit of 30ppm.

- Monthly average: 2.42ppm
- Daily maximum: 8.88ppm on 3rd
- Daily minimum: 0.332ppm on 8th
- Number of exceedances: zero

10. Biodiversity Monitoring

Fauna deaths:

- No fauna deaths were recorded during November.