

**TOMINGLEY GOLD PROJECT**

# **Monthly Environmental Monitoring Report**

**July 2016**

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## Monthly Environmental Monitoring Report

### July 2016

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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 July 2016.

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

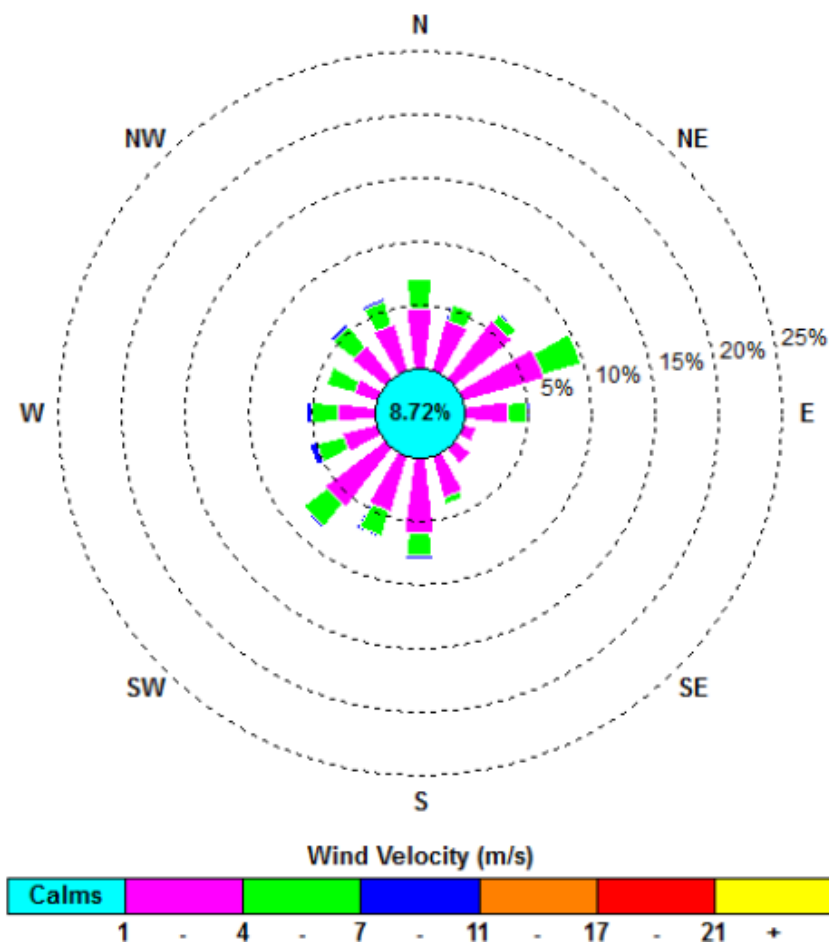
## 2. Weather for July 2016

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### A. Weather Station Data

TGO WEATHER DATA IS PRESENTED BELOW.

Figure 1. July 2016 wind rose



**Figure 2. Rainfall July 2016**

<b>July 2016</b>	<b>Rainfall (mm)</b>
July 1	0.6
July 5	5.8
July 6	1.4
July 8	17
July 9	0.2
July 11	6.6
July 12	0.2
July 14	0.2
July 19	15.6
July 20	54
July 23	5.6
July 24	1
<b>Total Rainfall</b>	<b>108.2</b>

### 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

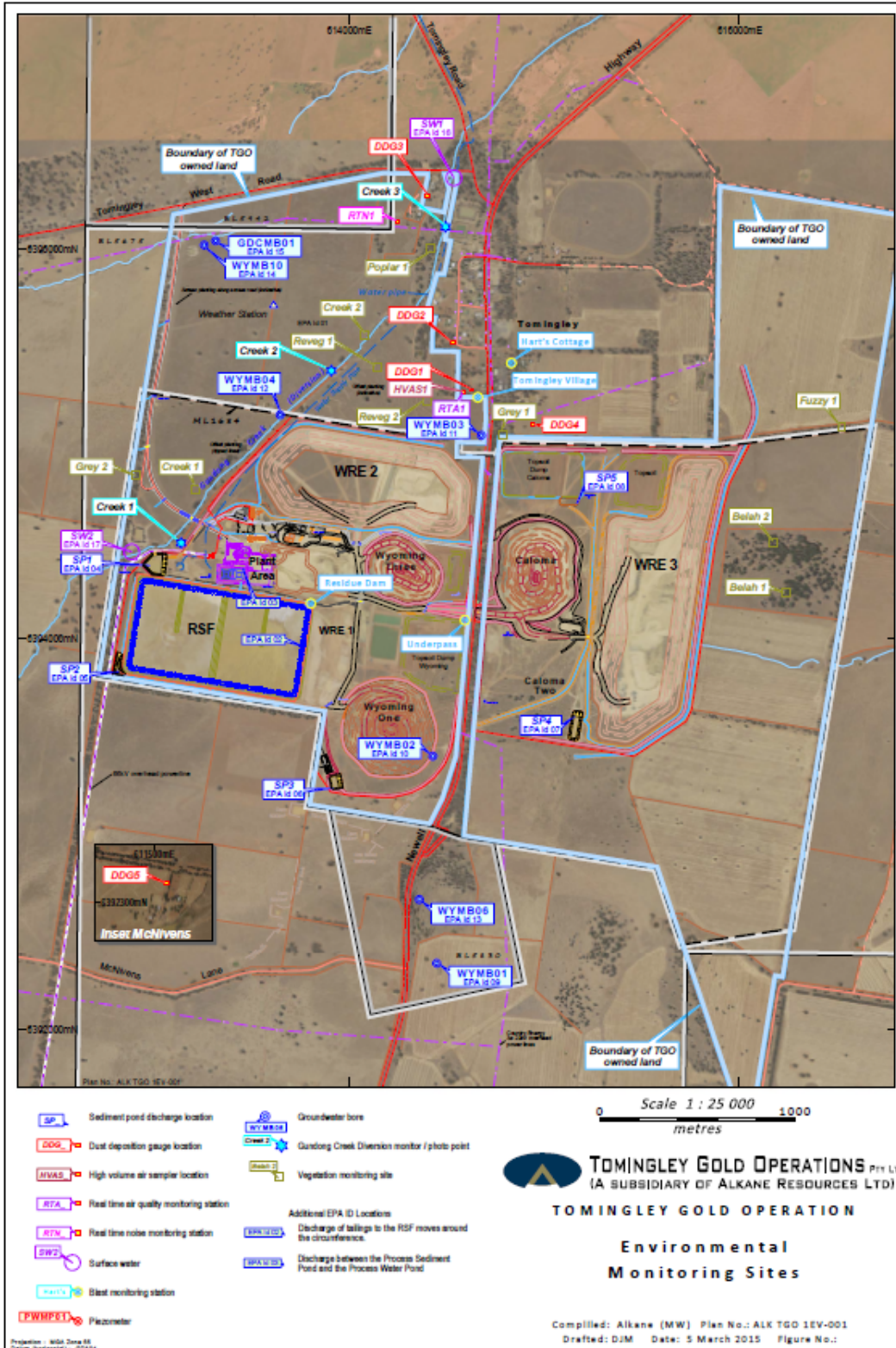
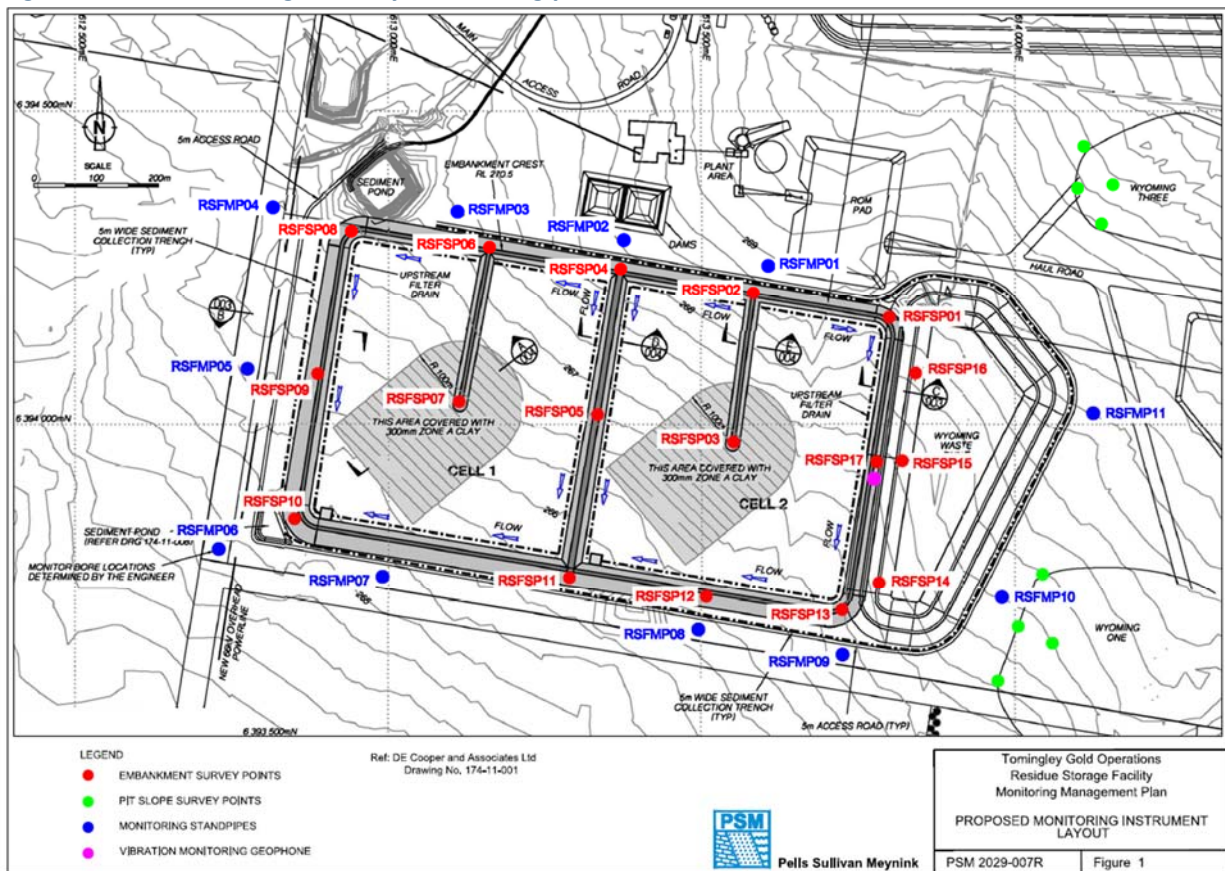


Figure 4 indicates the location of environmental and survey monitoring points on and around the Residue Storage Facility.

**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 24 hour average limit not exceeded on any occasions during July.



Figure 5. TEOM Data July 2016

Date	24 Hr Averages	Running Average	Comment
	(µg/m3)		
1/07/2016	10.3	18.9	
2/07/2016	15.5	18.9	
3/07/2016	14.3	18.9	
4/07/2016	10.4	18.8	
5/07/2016	5.5	18.8	
6/07/2016	5.7	18.8	
7/07/2016	13.8	18.7	
8/07/2016	10.6	18.8	
9/07/2016	9.1	18.8	
10/07/2016	11.2	18.8	
11/07/2016	8.7	18.8	
12/07/2016	7.1	18.8	
13/07/2016	13.2	18.8	
14/07/2016	15.0	18.8	
15/07/2016	17.0	18.8	
16/07/2016	15.8	18.9	
17/07/2016	10.7	18.9	
18/07/2016	10.8	18.9	
19/07/2016	8.8	18.9	
20/07/2016	6.7	18.9	
21/07/2016	9.8	18.9	1 hr average data used
22/07/2016	5.8	18.9	
23/07/2016	9.9	18.9	
24/07/2016	10.6	18.9	
25/07/2016	8.9	18.9	
26/07/2016	9.8	18.9	
27/07/2016	12.6	18.9	
28/07/2016	8.9	18.9	
29/07/2016	12.4	18.9	
30/07/2016	12.5	18.9	
31/07/2016	9.1	18.9	
<b>Average</b>	<b>10.7</b>		
	<b>24 Hour criteria exceedance</b>		

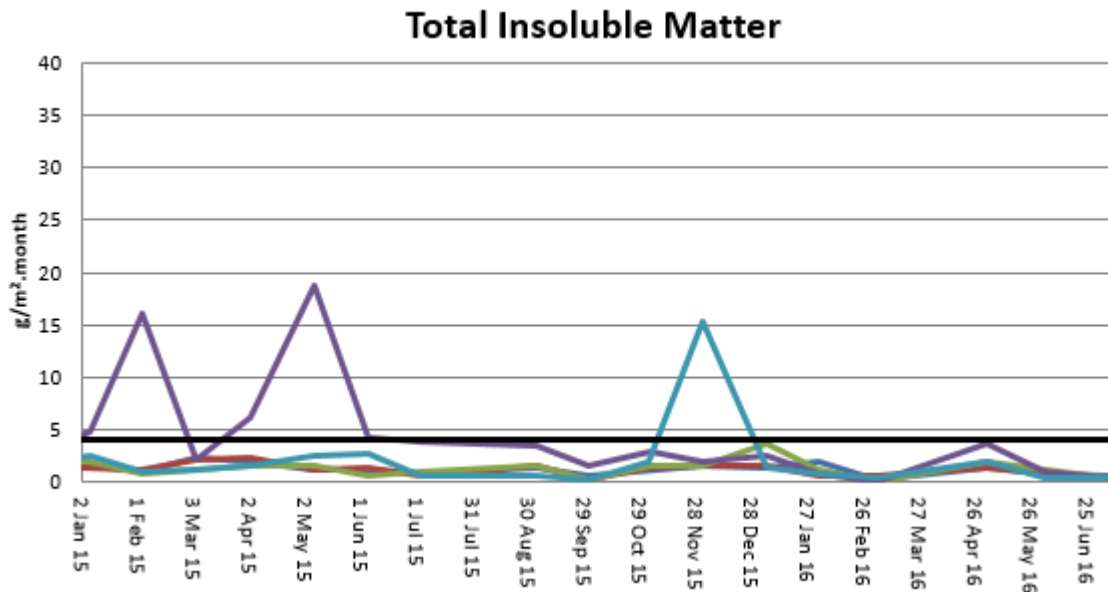
Note: For comparison purposes highlighted results indicate levels above the EPA and NEPM 24-hour maximum criteria for PM<sub>10</sub>



## 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 - 2016

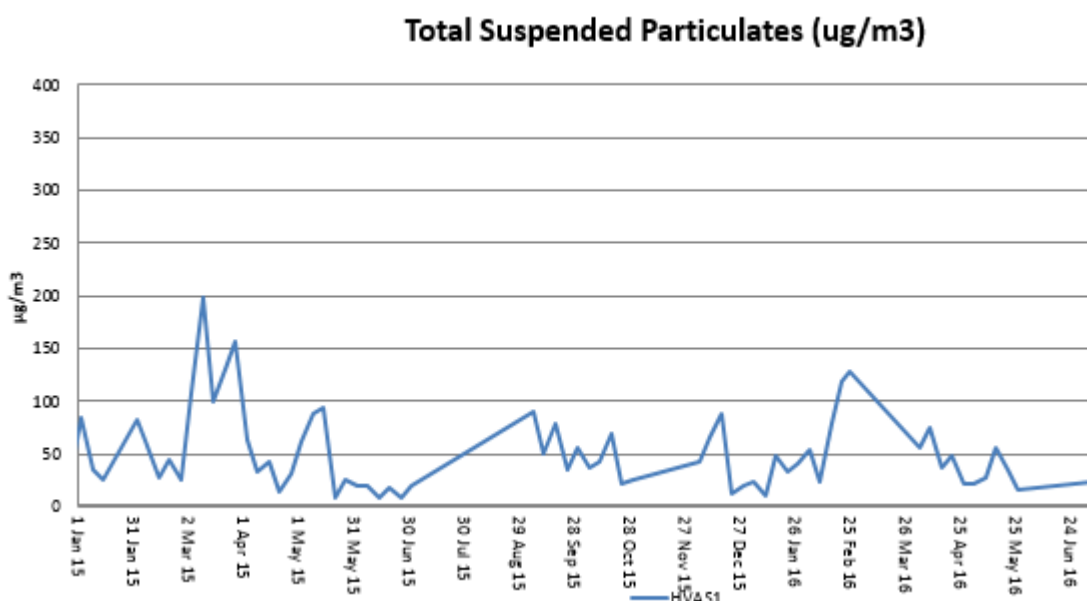


## C. High Volume Air Sampler - Total Suspended Particulates

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 - 2016

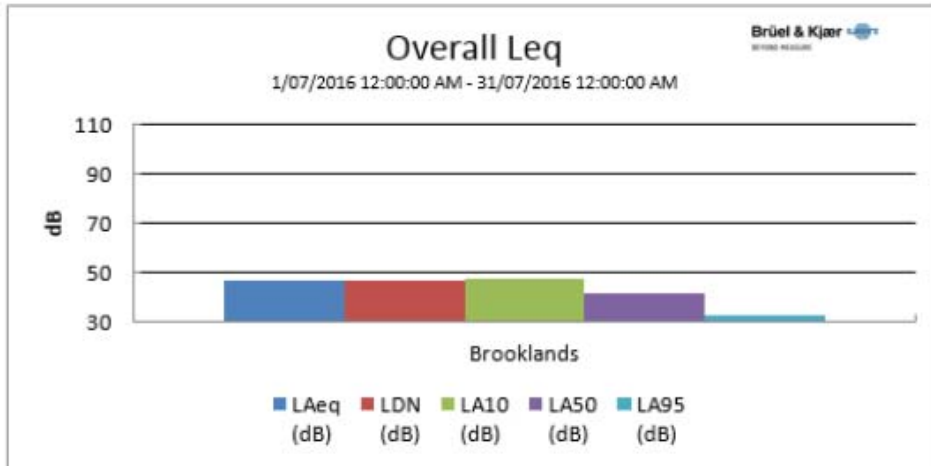


## 5. Noise Monitoring

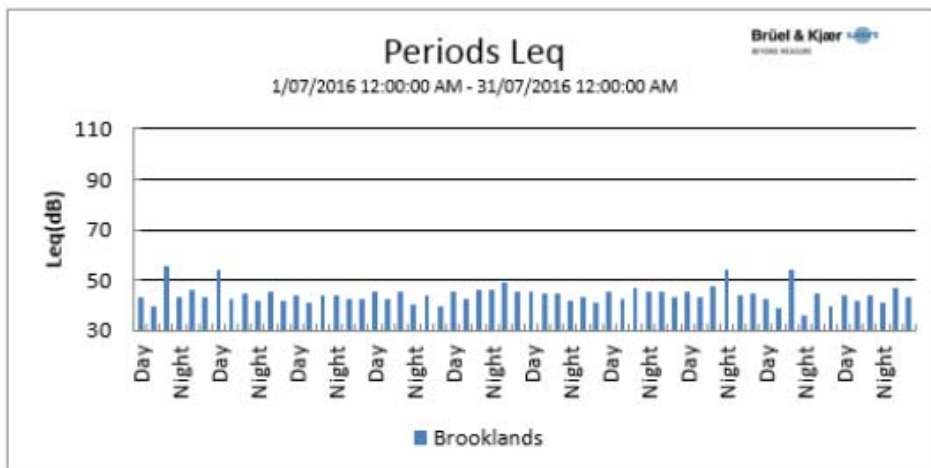
### A. Real-Time Noise Monitoring

See real-time noise monitoring data presented below.

Figure 8. TGO Noise Monitoring 1/7/2016 - 31/7/2016



Location	Start Time	End Time	Activity	LDN (dB)	L <sub>Aeq</sub> (dB)	L <sub>AF</sub> (dB)	L <sub>AMin</sub> (dB)	L <sub>A10</sub> (dB)	L <sub>A50</sub> (dB)	L <sub>A95</sub> (dB)
Brooklands	1/07 12:00:00 AM	31/07 12:00:00 AM	100%	46.9	46.9		25.0	47.6	41.5	32.5



## 6. Surface Water Monitoring

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### A. Gundong Creek

Gundong Creek flowed strongly over the course of the month.

Results of this sampling fell within the expected range.

Weekly sampling will be undertaken while the creek continues to flow.

### B. Sedimentation Ponds

Sediment basins were sampled during July with results showing no cause for concern.

## 7. Groundwater Monitoring

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The next round of groundwater monitoring will be undertaken during September in line with license requirements.

## 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 9. Blast Monitoring**

EventKey	Date/Time	Max R (mm/s)	Location
70843	5/07/2016 15:04	0.06	Harts Cottage
70843	5/07/2016 15:04	0.08	Tomingley Village
70861	7/07/2016 12:57	0.31	Harts Cottage
70861	7/07/2016 12:57	0.61	Tomingley Village
70934	11/07/2016 13:20	0.31	Harts Cottage
70934	11/07/2016 13:20	0.58	Tomingley Village
70955	12/07/2016 13:59	0.32	Harts Cottage
70955	12/07/2016 13:59	0.6	Tomingley Village
70975	13/07/2016 13:29	0.21	Harts Cottage
70975	13/07/2016 13:29	0.28	Tomingley Village
70990	14/07/2016 13:01	0.49	Harts Cottage
70990	14/07/2016 13:01	0.75	Tomingley Village
71145	16/07/2016 13:03	0.42	Harts Cottage
71145	16/07/2016 13:03	0.57	Tomingley Village
71315	18/07/2016 13:02	0.38	Harts Cottage
71315	18/07/2016 13:02	0.65	Tomingley Village
71477	25/07/2016 14:01	0.36	Harts Cottage
71477	25/07/2016 14:01	0.57	Tomingley Village
71522	27/07/2016 11:01	0.35	Harts Cottage
71522	27/07/2016 11:01	0.43	Tomingley Village
71587	30/07/2016 13:00	0.23	Harts Cottage
71587	30/07/2016 13:00	0.37	Tomingley Village
71590	30/07/2016 16:02	0.01	Harts Cottage
71590	30/07/2016 16:02	0.01	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.

The WAD results for July 2016 are:

- Monthly average: 4.35 ppm
- Daily maximum: 12.4 ppm on 21<sup>st</sup> July
- Daily minimum: 0.255ppm on 25<sup>th</sup> July
- Number of exceedances: zero

## 10. Biodiversity Monitoring

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### Fauna deaths:

- There were no fauna deaths in the RSF for the month.

### Site Fauna

- On site fauna sightings for July included:
- 2 Tawny Frogmouth owls, *Podargus strigoides*, remain in residence adjacent to administration building
- A number of Eastern Grey Kangaroos, *Macropus giganteus*, have been visible grazing in the Caloma 2 footprint.
- An Eastern Barn Owl, *Tyto alba*, was reported in the mining carpark during nightshift.
- A Spotted Harrier, *Circus assimilis*, was sighted hovering in the updraughts above the southern wall of WY1
- Regularly throughout July Grey Crowned Babblers, *Pomatostomus temporalis*, were seen in the tree corridor to the South of the RSF.
- A number of White Faced Herons, *Egretta novaehollandiae*, was spotted at the water point on the site access road.

### Vertebrate pests:

- A program of trapping feral cats and foxes has continued however no animals were captured during July.