

Licensee	Perilya Broken Hill Limited (PBHL)
Address	Wentworth Rd, Broken Hill, NSW, 2880.
Environmental Protection Licence	2688 (Southern Operations)
Link to Environmental Protection Licence	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=31560&SYSUID=1&LICID=2688
Reporting period	December 2017
Date report published on website	

Environmental Protection Licence 2688

Dust Monitoring

Perilya Broken Hill Limited (PBHL) has nine (9) dust monitoring points located around the Southern Operations site (Figure 1). A summary of Environmental Protection Licence (EPL) 2688 conditions is shown in Table 1.



Figure 1. Location of the EPL 2688 dust monitoring points associated with Perilya's Southern Operations.

Table 1. Summary of the EPL 2688 conditions for the dust monitoring points.

Dust Monitoring Points: EPL 2688 Conditions	
Condition	Licence Requirement
Licence Point	3,4,5,6,7,8,9,10,11
Pollutant/s	Particulates (deposited matter)
	Total Lead
Unit of measure	Grams per square meter per month (g/m ² /month)
Sampling Method	AM-19
Monitoring frequency	Every 30 days ± two days
Data Reporting	Monthly

Dust Monitoring Point Results

December 2017 particulates – deposited matter and total lead results are presented in Table 2. Results of laboratory analyses were received by Perilya on the 29/12/2017.

Table 2. December dust monitoring point results.

Licence Point	Particulates – deposited matter (g/m²/month)	Total Lead (g/m²/month)
3	8.8	0.530
4	3.1	0.150
5	2.9	0.220
6	14.0	0.300
7	1.4	0.068
8	2.6	0.028
9	1.1	0.050
10	1.9	0.028
11	4.3	0.140

* No result (NR) due to sample bottle broken due to suspected vandalism

Ambient Air Monitoring

EPL 2688 requires two (2) ambient air monitoring sites, both located on the Southern Operations lease (Figure 2). PBHL currently uses high volume air samplers (HVAS) for the ambient air monitoring program. The HVAS operate (sample) for 24 hours every six (6) days.



Figure 2. Locations of the ambient air monitoring points associated with EPL 2688.

Table 3 provides a summary of EPL 2688 conditions.

Table 3. Summary of the EPL 2688 conditions for the ambient air monitoring points.

Ambient Air Monitoring Points: EPL 2688 Conditions	
Condition	Licence Requirement
Licence Point	12 and 13
Pollutant/s	Total Suspended Particulates Total lead (Pb)
Unit of measure	Micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)
Sampling Method	AS 3580.9.15:2014 AS/NZS 3580.9.3:2015
Monitoring frequency	Every six days for 24 hours
Data Reporting	Every 6 days

HVAS Results

Total suspended particulate (TSP) and total lead results are presented in Table 4. Monthly averages for TSP and total lead for the previous 12 months are shown in Figure 3 and Figure 4 respectively. The final set of results for December’s ambient air monitoring, were received on the 23/01/2018.

Table 4. December HVAS TSP and total lead results.

Licence Point	Pollutant	No. times measured in the month	Min. Value	Mean Value	Median Value	Max. Value
12	TSP ($\mu\text{g}/\text{m}^3$)	5	26.0	72.2	32.0	217.0
	Total Lead ($\mu\text{g}/\text{m}^3$)	6	0.1100	0.312	0.195	0.830
13	TSP ($\mu\text{g}/\text{m}^3$)	6	21.0	136.7	30.0	618.0
	Total Lead ($\mu\text{g}/\text{m}^3$)	6	0.0270	0.667	0.101	3.200

Annual monthly average TSP (previous 12 months)

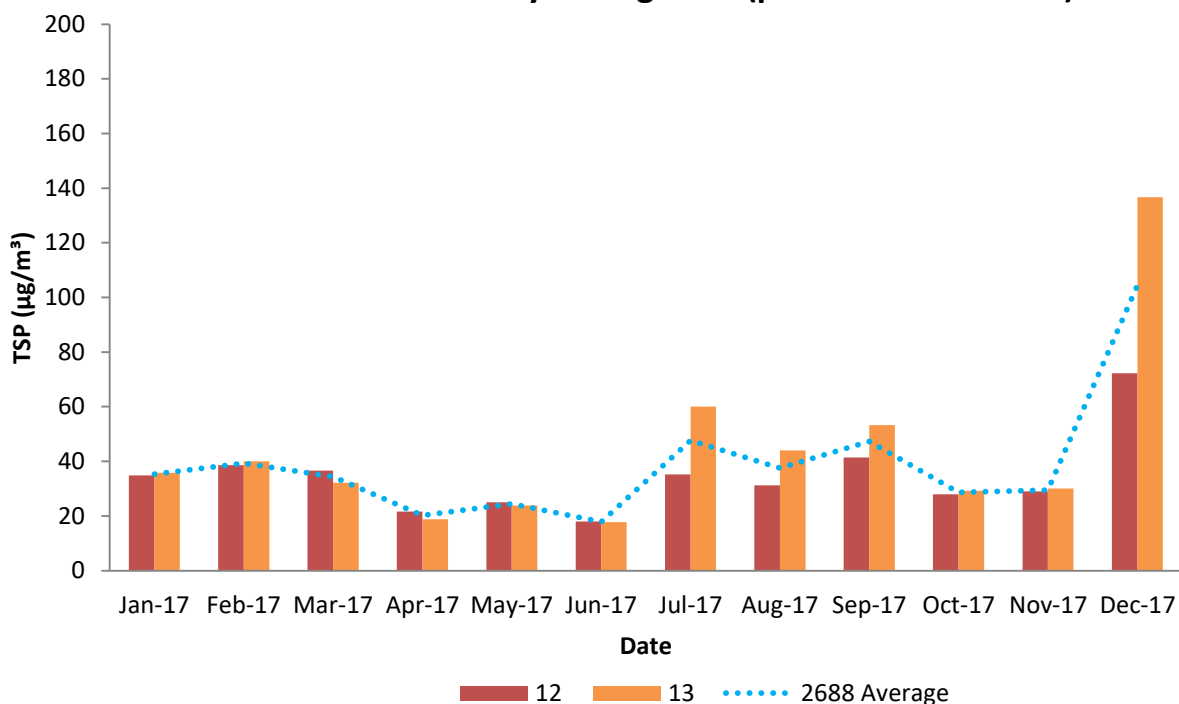


Figure 3. Average TSP results for the 12 months up to and including December.

Annual monthly Total Lead average (previous 12 months)

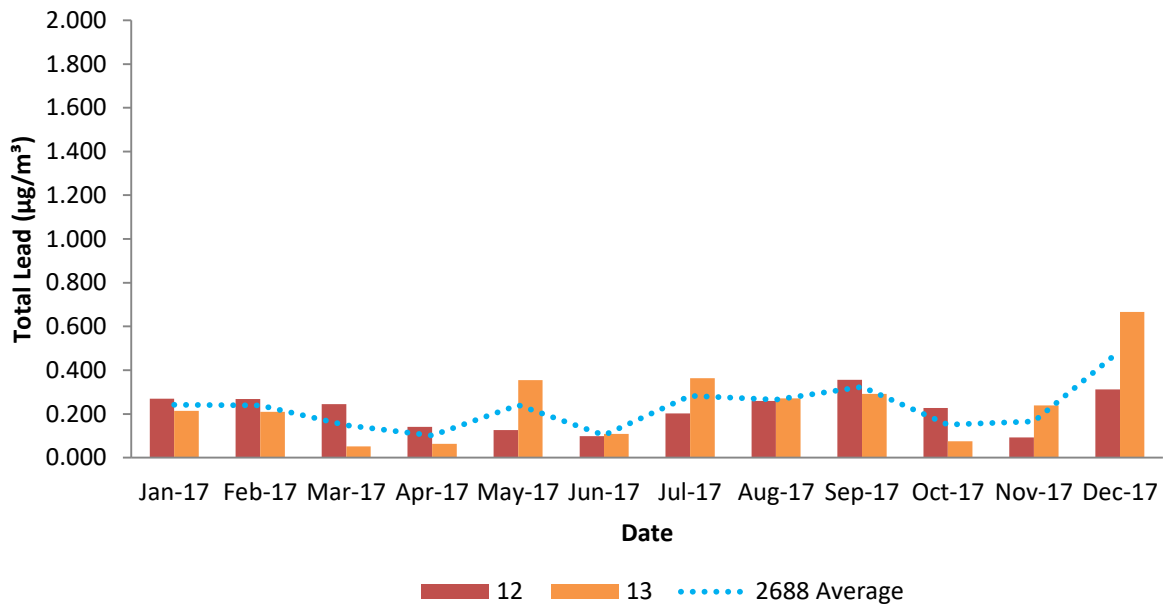


Figure 4. Average total lead results for the 12 months up to and including December.

Water Quality

PBHL has two (2) licenced discharge points for surface waters, Licence Point 1 and Licence Point 2 (Figure 5). A summary of the licence conditions relating to discharges of waters from these two points is shown in Table 5.

A diversion drain was constructed in the last quarter of 2016 to ensure that water from Railway Town could pass through the Perilya Operation without being contaminated by mine water. A mechanism was installed to allow harvesting of this run off from residential areas when site water storage is low and the capture will benefit the operation.

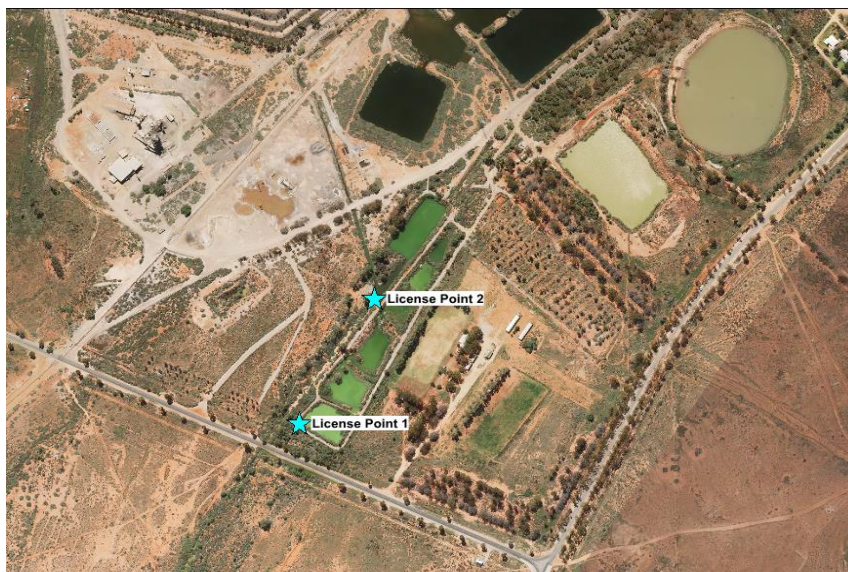


Figure 5. Location of the EPL2688 licenced discharge points.

Table 5. Summary of the EPL 2688 conditions for licenced surface waters discharge points.

Water EPL 2688 Conditions	
Condition	Licence Requirement
Licence Points	1 and 2
Pollutant	Arsenic
	Cadmium
	Calcium
	Conductivity
	Copper
	Lead
	Molybdenum
	Oil and Grease
	pH
	Sulphate
	Total Suspended Solids
	Total Dissolved Solids
	Zinc
Unit of measure	milligrams per litre (mg/L) pH in pH scale
Sampling method	Grab sample
Monitoring frequency	
Point 1	Daily during discharge
Point 2	Daily during discharge
Data reporting	All data reported
Limits	
Point 1 Volume	912 megalitres (ML) per year
Point 2 Discharge	Must not occur unless more than 75 millimetres of rain falls in Broken Hill within the previous three days
Arsenic (As)	0.5 mg/L
Copper (Cu)	0.5 mg/L
Lead (Pb)	0.1 mg/L
Oil and Grease	10 mg/L
pH	6.5-8.5
Total Suspended Solids (TSS)	50 mg/L
Zinc (Zn)	15 mg/L

Water Quality results

Licence Points 1 and 2 did not discharge during December.

Blasting

PBHL has four (4) blast monitors associated with the Southern Operations (Figure 6). A summary of EPL 2688 conditions for blasting is provided in Table 7.



Figure 6. Location of EPL2688 blast monitors.

Table 7. Summary of EPL 2688 conditions for blasting.

Blasting EPL 2688 Conditions	
Condition	Licence Requirement
Licence Points	9B Westside Drive, Broken Hill NSW, 2880. 1A Wentworth Road (Nursing Home), Broken Hill, NSW 2880. Gaffney Street (private residence), Broken Hill, NSW. 53 Rainbow Avenue, Broken Hill, NSW 2880.
Pollutant/s	Ground Vibration
Unit of measure	Millimetres per second (mm/s)
Sampling method	AS 2187.2-2006
Monitoring frequency	All blasts
Data Reporting	All blasts
Date results received	Immediately following each blast
Limits	
Between 2340h to 0630h	Two (2) millimetres per second (mm/s)
Between 2340h to 0630h – duration greater than five seconds	One (1) one millimetre per second (mm/s)
Between 0630h and 2340h – 95% of blasts	Five (5) millimetres per second (mm/s)
Between 0630h and 2340h	Ten (10) millimetres per second (mm/s)

Blasting Results

A total of 19 production blasts were conducted during December (Table 8). All blasts were within licence conditions.

Table 8. December blast vibration results for EPL 2688.

Licence Point	Parameter (mm/s)	No. times measured in the month	Min. Value	Mean Value	Median Value	Max. Value
Wentworth Road*	Blast Vibration	19	0.317	0.417	0.350	0.865
Rainbow Ave	Blast Vibration	19	0.350	0.797	0.461	2.619
Westside Dr	Blast Vibration	19	0.350	0.615	0.350	2.103
Gaffney St	Blast Vibration	19	0.350	0.374	0.350	0.800

*Wentworth Road site formally known as Nursing Home

Complaints

No complaints were received under EPL 2688 during December 2017.