

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

Environmental Protection Licence 2688

Deposited Particulates Monitoring

Perilya Broken Hill Limited (PBHL) has nine (9) deposited particulates 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 deposited 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	Total Deposited Particulates (TDP)
	Pb in Deposited Particulates (TDP-Pb)
Unit of measure	Grams per square meter per month ($\text{g}/\text{m}^2/\text{month}$)
Sampling Method	AM-19
Monitoring frequency	Every 30 days \pm two days
Data Reporting	Monthly

Deposited Particulates Monitoring Results

June 2020 TDP and TDP-Pb are presented in Table 2. Results of laboratory analyses were received by Perilya on the 24/07/2020.

Table 2 June 2020 deposited dust monitoring results.

Licence Point	Particulates – deposited matter ($\text{g}/\text{m}^2/\text{month}$)	Total Lead ($\text{g}/\text{m}^2/\text{month}$)
3	1.8	0.048
4	1.0	0.005
5	0.9	0.033
6	1.1	0.012
7	0.8	0.001
8	0.5	0.001
9	0.8	0.004
10	0.7	0.001
11	5.9	0.001

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 (TSP)
	Pb in Total Suspended Particulates (TSP-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 for 24 hours

HVAS Results

TSP and TSP-Pb results are presented in Table 4. Monthly averages for TSP and TSP-Pb for the previous 12 months are shown in Figure 3 and Figure 4 respectively. The final set of results for June ambient air monitoring, were received on the 21/07/2020.

Table 4 June HVAS TSP and total lead results

Licence Point	Pollutant	No. times measured in the month	Min. Value	Mean Value	Median Value	Max. Value
12	Total suspended particulates	4*	14.0	29.1	29.2	44.2
	Total Lead	4*	0.067	0.217	0.115	0.573
13	Total suspended particulates	5	11.6	35.3	27.4	56.0
	Total Lead	5	0.019	0.355	0.395	0.681

*Sample voided due to filter paper alignment during sampling event

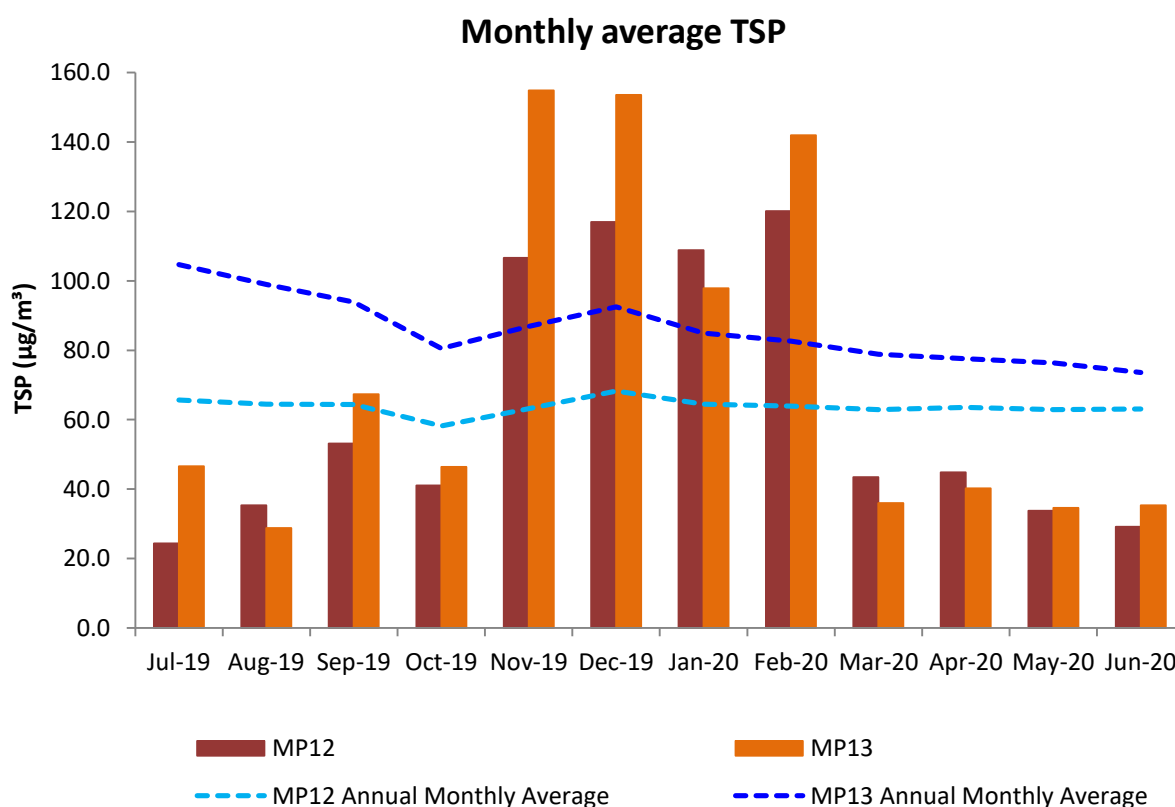


Figure 3 Average TSP results for the 12 months up to and including June 2020

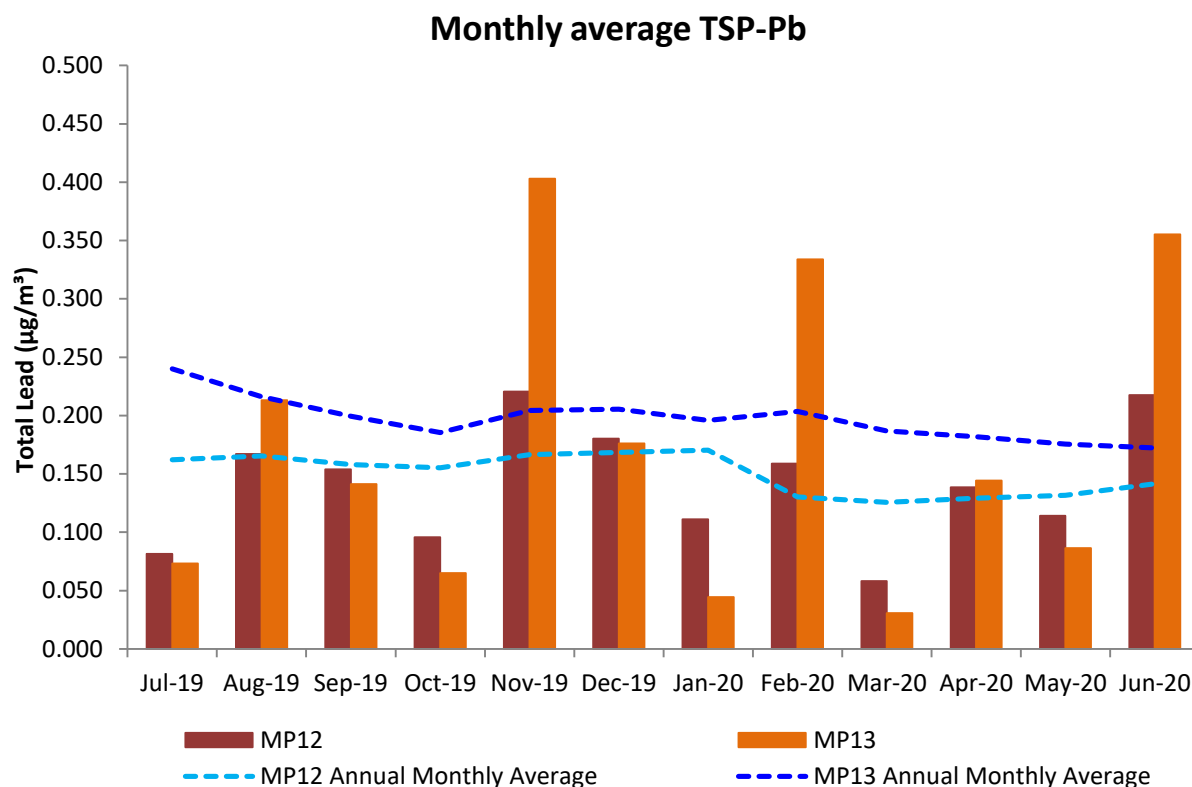


Figure 4 Average TSP-Pb results for the 12 months up to and including June 2020.

Water Quality Monitoring

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.

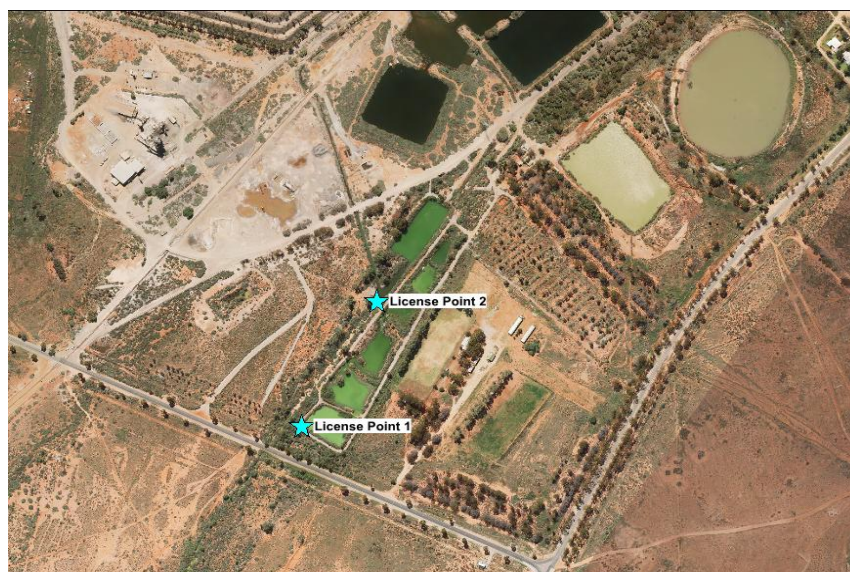


Figure 5 Location of the EPL2688 licence discharge points

Table 5 Summary of EPL 2688 license conditions for surface water discharge

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 June 2020.

Blast and Vibration Monitoring

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



Figure 6 Location of EPL2688 blast monitors

Table 6 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. 121 Slag Street, 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)

Blast and Vibration Results

A total of 17 production blasts were conducted during June (Table 7). All blasts were within licence conditions. Blasts detected above the minimum trigger point are represented below.

Table 7 June 2020 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
Robinson College*	Peak Vector Sum	8	0.460	0.939	0.615	1.950
Rainbow Ave	Peak Vector Sum	13	0.500	0.796	0.830	1.100
Westside Drive	Peak Vector Sum	14	0.540	1.785	0.890	5.620
Slag Lane [#]	Peak Vector Sum	15	0.500	1.426	1.420	2.750

Calculations are based on blasts registering PVS (triggers vary between units depending on proximity to non-mine generated vibration (>0.4 or >0.5 or >0.75mm/sec). The number of times measured is based on actual number of production blasts.

*Robinson College site formally known as Nursing Home or Wentworth Road;

[#]Slag Lane formally known as Gaffney St

Community Complaints

Four complaints received for EPL 2688 during June 2020 in regards to blasting.