

Licensee	Hera Resources Pty Ltd
Address	'The Peak, Burthong Road, Nymagee, NSW 2831
Environmental Protection Licence	20179
Link to Licence	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32372&SYSUID=1&LICID=20189
Project Approval	10_0191
Reporting Period	Sep 2018
Date Published	14 Nov 2018

Weather Monitoring

Hera Resources Pty Ltd (the Company), a wholly owned subsidiary of Aurelia Metals Limited, owns and operates the Hera Mine. The Company has one licenced weather station (licence point 23) associated with the mine (Figure 1). A summary of the licence conditions (Environmental Protection Licence (EPL) 20189) associated with this point is presented in Table 1.



Figure 1. Location of the licence points associated with Gold Room Stack monitoring (Licence Point 24 and Licence Point 39), blast monitoring and meteorological monitoring (Licence Point 23).

Table 1. Summary of EPL 20189 conditions associated with the licensed weather station.

Parameter	Frequency
Air Temperature (°C)	Continuous
Wind Direction (°)	Continuous
Wind Speed (m/s)	Continuous
Sigma Theta (°)	Continuous
Rainfall (mm)	Continuous
Relative Humidity (%)	Continuous

Meteorological monitoring is conducted on a continuous basis. Table 2 is a summary of the data collected by the weather station this month. Figure 2 is a wind rose for the month.

Table 2. Summary of meteorological data for the month.

Pollutant	No. of measurements for month	Min. value	Mean value	Median value	Max. value
Air Temperature (°C)	Continuous	-4.05	13.15	13.46	27.76
Wind Speed (m/s)	Continuous	0.00	2.06	1.83	8.16
Sigma Theta (°)	Continuous	2.07	22.78	18.11	101.62
Rainfall (mm)	Continuous	0.00	0.00	0.00	2.20
Relative Humidity (%)	Continuous	7.25	47.28	44.76	95.29

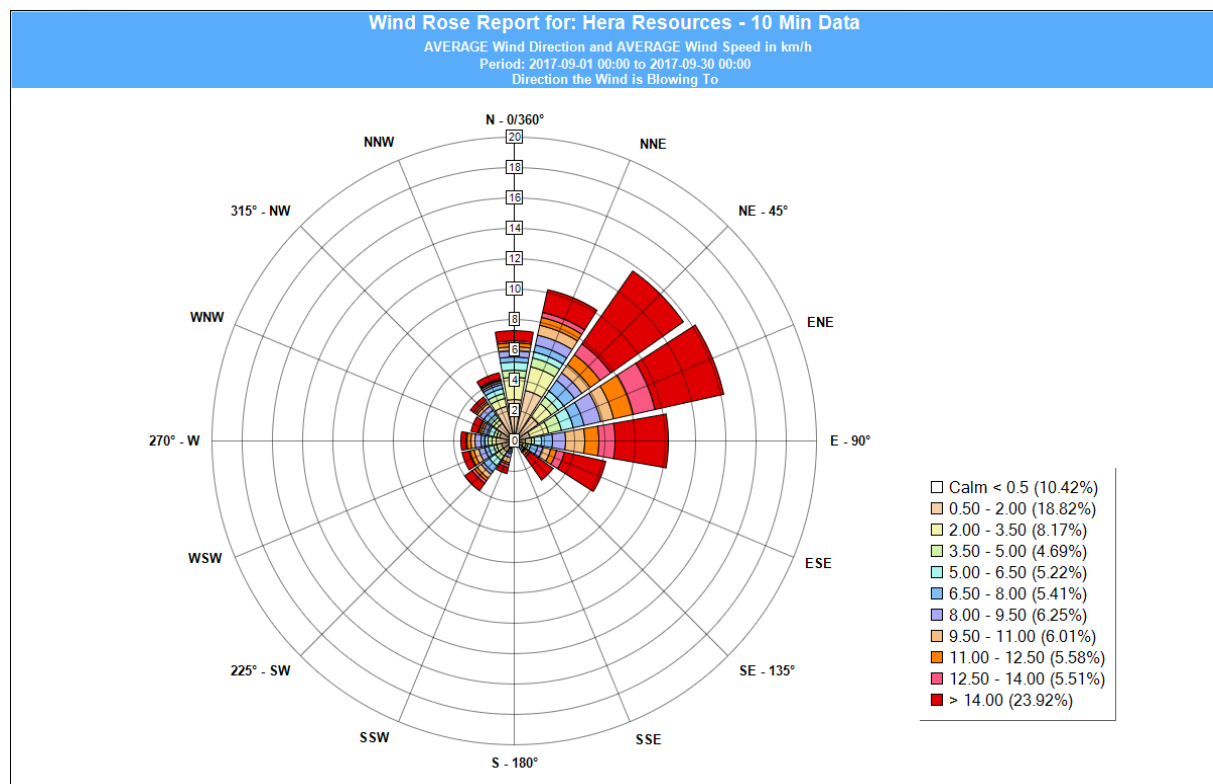


Figure 2. Wind rose for the month.

Surface Water Monitoring

The Company has six licence points associated with surface waters. Four of these points are located within the Mining Lease (Figure 3) and two are located on Box creek, upstream and

downstream of the mining lease (Figure 4). A summary of the licence conditions associated with these licence points is presented in Table 3.



Figure 3. Licensed surface water monitoring points located onsite.

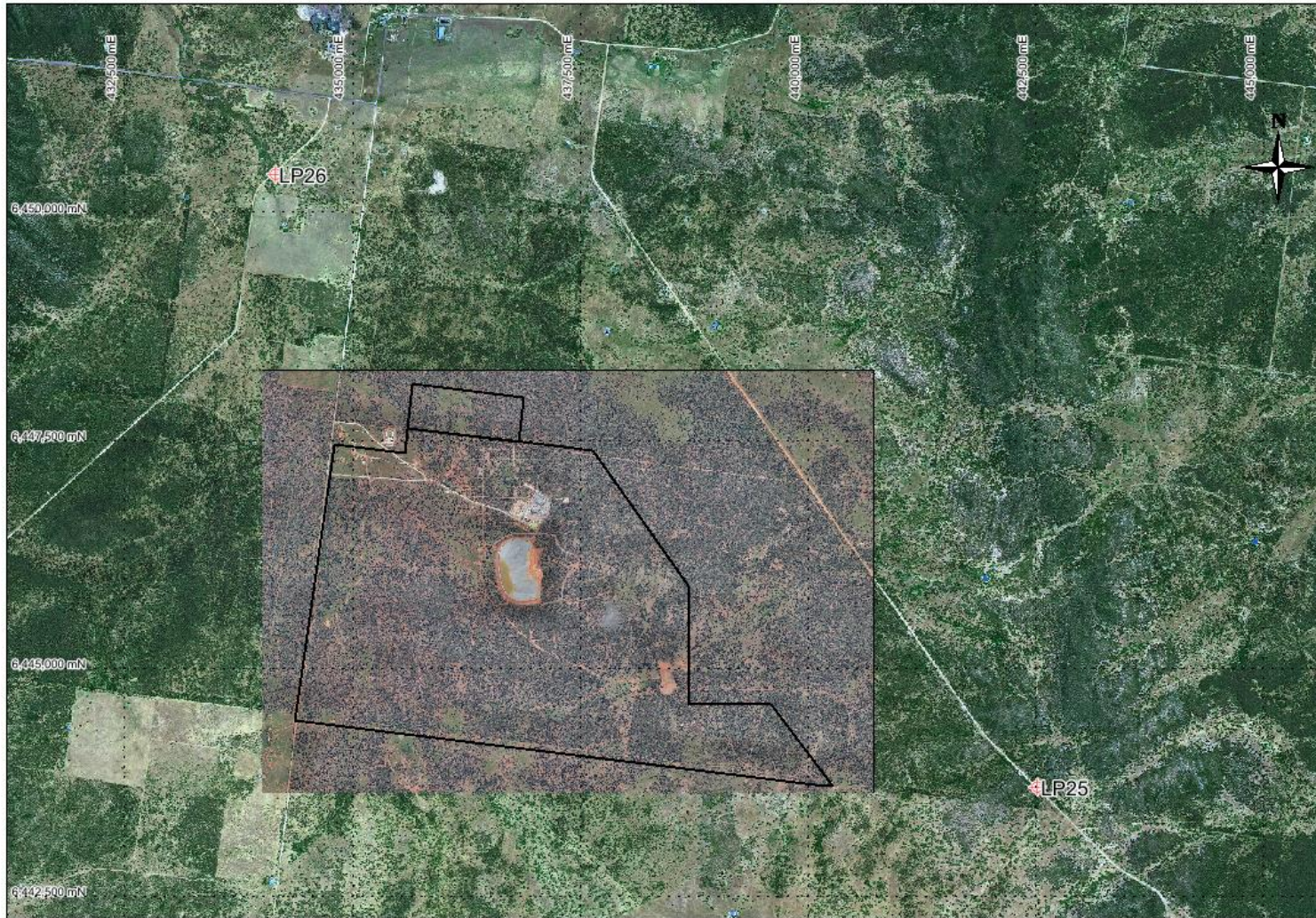


Figure 4. Licensed surface water monitoring points located offsite. The black outline represents the mining leases.

Table 3. Summary of EPL 20189 conditions associated with licensed surface water monitoring points.

EPA ID No.	Monitoring Frequency	Limit
1, 2	Daily during discharge	
3, 4, 25, 26	During discharge	
	Pollutant	
1	Cyanide (weak acid dissociable (WAD))	10 mg/L
2	Cyanide (WAD)	20 mg/L (90 percentile limit)
		30 mg/L (max. limit)
3, 4, 25, 26 (Please note: Limits apply only to Licence Points 3 and 4.)	Aluminium	0.055 mg/L
	Arsenic	0.024 mg/L
	Boron	0.370 mg/L
	Cadmium	0.0002 mg/L
	Copper	0.0014 mg/L
	Cyanide (WAD)	0.007 mg/L
	Electrical Conductivity	1000 (µS/cm)
	Lead	0.0034 mg/L
	Manganese	1.90 mg/L
	Nickel	0.011 mg/L
	Nitrogen (total)	0.5 mg/L
	Oil and Grease	10 mg/L
	pH	6.5-8.5
	Phosphorus (total)	0.025 mg/L
	Silver	0.00005 mg/L
Total suspended solids	50 mg/L	
Zinc	0.008 mg/L	

Table 4 is a summary of the surface water quality results. The table has been colour coordinated by the licence limit that applies to each licence point. Licence Point 3, 4, 25 and 26 did not discharge for the month. No exceedances were recorded this month.

Table 4. Summary of surface water quality results for the month.

	Analytes (mg/L)																			
	WAD Cyanide				Al	As	B	Cd	Cu	EC (µS/cm)	Pb	Mn	Ni	N	Oil & Grease	pH	Ag	P	TSS	Zn
	Min.	Mean	Median	Max.																
Licence Limits	10				0.055	0.024	0.37	0.0002	0.0014	1000	0.0034	1.9	0.011	0.5	10	6.5-8.5	0.00005	0.025	50	0.008
	20 (90 Percentile)																			
	30 (max.)																			
	0.007																			
Licence Points																				
1	0	0.17	0	5																
2	0	0.5	0	10																
3	No flow																			
4	No flow																			
25	No flow																			
26	No flow																			

Groundwater Monitoring

The Company has 17 licence points associated with groundwater. These points are located around the Project Area (Figure 5) and are a combination of observation bores, productions bores and piezometers. A summary of the licence conditions associated with these licence points is presented in Table 5

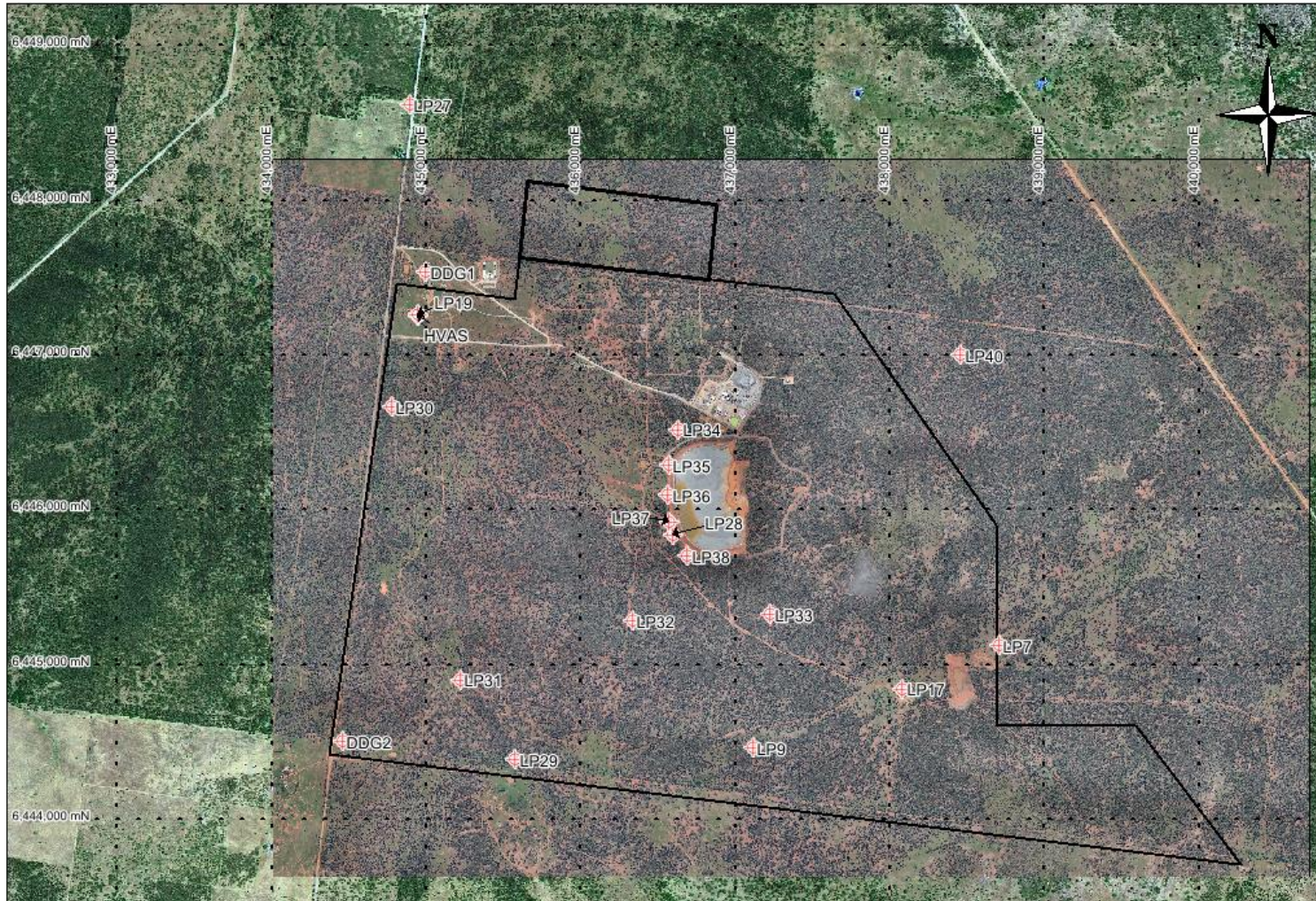


Figure 5. Licensed groundwater and air quality monitoring points.

Table 5. Summary of EPL 20189 conditions associated with licensed groundwater monitoring points.

EPA ID No.	Monitoring Frequency
	Quarterly
	Pollutant
7, 9, 17, 19, 27, 28, 29, 30, 31, 32, 33, 40	Antimony (mg/L)
	Arsenic (mg/L)
	Bicarbonate (mg/L)
	Boron (mg/L)
	Cadmium (mg/L)
	Calcium (mg/L)
	Carbonate (mg/L)
	Chloride (mg/L)
	Chromium (mg/L)
	Copper (mg/L)
	Cyanide (free) (mg/L)
	Cyanide (total) (mg/L)
	Cyanide (WAD) (mg/L)
	Electrical Conductivity ($\mu\text{S}/\text{cm}$)
	Iron (mg/L)
	Lead (mg/L)
	Magnesium (mg/L)
	Mercury (mg/L)
	Molybdenum (mg/L)
	Nickel (mg/L)
	pH
	Potassium (mg/L)
	Silver (mg/L)
	Sodium (mg/L)
Tin (mg/L)	
Total dissolved solids (mg/L)	
Zinc (mg/L)	
7, 27, 28, 29, 30, 34, 35, 36, 37, 38, 40	Standing Water Level (m)
EPA ID No.	Monitoring Frequency
	When water present
	Pollutant
34, 35, 36, 37, 38	Cyanide (free) (mg/L)
	Cyanide (total) (mg/L)
	Cyanide (WAD) (mg/L)
	Electrical Conductivity ($\mu\text{S}/\text{cm}$)
	pH

Quarterly groundwater are presented in Table 6.

Table 6. Summary of quarterly groundwater quality results.

Licence Point	Analyte (mg/L)													EC (mS/cm)
	Sb	As	HCO3-	B	Cd	Ca	CO3-2	Cl	Cr	Cu	CN- (Free)	CN- (Total)	CN- (WAD)	
7	<0.001	<0.001	629	0.49	<0.0001	174	<1	998	<0.001	<0.001	<0.004	<0.004	<0.004	4880
9	<0.001	<0.001	590	0.83	<0.0001	184	<1	960	<0.001	<0.001	<0.004	<0.004	<0.004	5760
17	<0.001	0.002	251	0.34	0.0001	51	<1	281	<0.001	0.003	<0.004	<0.004	<0.004	1550
19	<0.001	0.002	436	1.29	<0.0001	78	<1	1000	<0.001	0.002	<0.004	<0.004	<0.004	5120
27	<0.001	<0.001	460	1.71	<0.0001	60	<1	1310	<0.001	<0.001	<0.004	<0.004	<0.004	6370
28	0.003	<0.001	628	0.76	<0.0001	195	<1	941	<0.001	0.001	<0.004	<0.004	<0.004	5540
29	0.006	0.004	308	0.52	<0.0001	54	<1	378	<0.001	<0.001	<0.004	<0.004	<0.004	2370
30	<0.001	0.002	545	2.18	<0.0001	67	<1	1360	<0.001	<0.001	<0.004	<0.004	<0.004	7700
31	0.001	<0.001	342	1.07	<0.0001	94	<1	1200	<0.001	0.003	<0.004	<0.004	<0.004	6000
32	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
33	<0.001	0.004	540	0.62	<0.0001	181	<1	720	<0.001	0.001	<0.004	<0.004	<0.004	4690
34											DRY	DRY	DRY	DRY
35											DRY	DRY	DRY	DRY
36											DRY	DRY	DRY	DRY
37											DRY	DRY	DRY	DRY
38											DRY	DRY	DRY	DRY
40	<0.001	<0.001	599	0.57	<0.0001	178	<1	1080	<0.001	<0.001	<0.004	<0.004	<0.004	5320
	Analyte (mg/L)													SWL (m)
	Fe	Pb	Mg	Hg	Mo	Ni	pH	K	Ag	Na	Sn	TDS	Zn	
7	0.13	<0.001	157	<0.0001	<0.001	<0.001	7.25	13	<0.001	509	<0.001	2950	<0.005	52.93
9	2.18	<0.001	226	<0.0001	<0.001	<0.001	7.67	26	<0.001	687	<0.001	3540	<0.005	
17	<0.05	<0.001	54	0.0005	<0.001	0.003	7	14	<0.001	160	<0.001	849	0.037	
19	<0.05	<0.001	125	<0.0001	<0.001	0.002	7.56	34	<0.001	776	<0.001	2870	0.018	
27	0.39	<0.001	145	<0.0001	<0.001	0.001	7.29	42	<0.001	968	<0.001	3420	0.009	55.39
28	1.51	<0.001	226	<0.0001	<0.001	0.002	7.35	29	<0.001	640	<0.001	2920	0.101	90.54
29	1.09	<0.001	67	<0.0001	0.001	<0.001	7.57	17	<0.001	317	<0.001	1180	0.015	66.09
30	0.41	<0.001	101	<0.0001	0.001	0.003	7.61	35	<0.001	1300	<0.001	4470	<0.005	60.47
31	<0.05	<0.001	136	<0.0001	<0.001	0.002	8.02	31	<0.001	878	<0.001	3160	0.035	
32														
33	2.69	<0.001	199	0.0018	<0.001	0.006	7.08	30	<0.001	513	<0.001	2960	0.026	
34											DRY	DRY	DRY	DRY
35											DRY	DRY	DRY	DRY
36											DRY	DRY	DRY	DRY
37											DRY	DRY	DRY	DRY
38											DRY	DRY	DRY	DRY
40	0.1	<0.001	185	<0.0001	0.006	0.002	7.54	18	<0.001	660	<0.001	3000	0.011	53.98

Noise Monitoring

The Company has four licenced monitoring points (R1, R2, R3 and R4) located along the Burthong Road (Figure 6). The locations are strategically placed near the Hera Mine's nearest neighbours. R1 and R2 are measured from the same point as both neighbours are located in very close proximity to each other. A summary of the EPL and Project Approval (PA) conditions associated with these licenced points is presented in Table 7.



Figure 6. Licenced noise monitoring locations. The black outline represents the Mining Lease areas.

Table 7. Summary of EPL 20189 conditions associated with noise monitoring.

Location	Pollutant - Noise	Limits
R1, R2, R3, R4	Monday to Friday - 0700 hours (hrs) to 1800 hrs	LAeq (15 minute) 35 decibels (dB)
	Monday to Friday - 1800 hrs to 2200 hrs	LAeq (15 minute) 35 dB
	All other times	LAeq (15 minute) 35 dB
		LA1 (1 minute) 45 dB

An independent consultant (EMM Consultants) was engaged to conduct a noise assessment in July 2017. The results were reported in the July 2017 Environment Report.

Blast Monitoring

The blast monitor is located adjacent to the dwelling on the nearest neighbour's property (Figure 1). A summary of the EPL and PA conditions associated with this licenced point are presented in Table 8.

Table 8. Summary of EPL 20189 and PA 10_0191 conditions associated with blast monitoring.

Location	Pollutant	Time Period	Limits
Blast monitoring	Ground vibration	All times	10 mm/s (max.)
	<i>(monitor for every blast)</i>	Day	5 mm/s (95% of total blasts)
		Evening	2 mm/s (95% of total blasts)
		Night and all day on Sundays and Public Holidays	1 mm/s (max.)
	Airblast overpressure	All times	120 dB (max.)
	<i>(monitor for every blast)</i>	All times	115 dB (95% of total blasts)

The Company conducted a total of 66 blasts this month. The characteristics of each blast are presented in Table 9. No exceedances were recorded for the month.

Table 9. Summary of blast monitoring results for the month.

Date	Time	Time period	Vibration (mm/s)	Overpressure (dB)
Saturday, 1 September 2018	6:45	Night	<0.35	
Saturday, 1 September 2018	19:00	Evening	<0.35	
Saturday, 1 September 2018	19:00	Evening	<0.35	
Sunday, 2 September 2018	6:45	Sunday	<0.35	
Sunday, 2 September 2018	18:45	Sunday	<0.35	
Sunday, 2 September 2018	18:45	Sunday	<0.35	
Monday, 3 September 2018	6:45	Night	<0.35	
Tuesday, 4 September 2018	7:15	Day	<0.35	
Tuesday, 4 September 2018	7:15	Day	<0.35	
Tuesday, 4 September 2018	18:45	Evening	0.106	91.50
Wednesday, 5 September 2018	7:00	Day	<0.35	
Wednesday, 5 September 2018	7:00	Day	<0.35	
Wednesday, 5 September 2018	7:00	Day	<0.35	
Wednesday, 5 September 2018	7:00	Day	<0.35	
Thursday, 6 September 2018	18:50	Evening	<0.35	
Friday, 7 September 2018	6:00	Night	<0.35	
Friday, 7 September 2018	6:00	Night	<0.35	
Friday, 7 September 2018	6:00	Night	<0.35	
Friday, 7 September 2018	6:00	Night	<0.35	
Saturday, 8 September 2018	6:45	Night	<0.35	
Saturday, 8 September 2018	6:45	Night	<0.35	
Saturday, 8 September 2018	6:45	Night	<0.35	
Sunday, 9 September 2018	7:00	Sunday	<0.35	
Sunday, 9 September 2018	7:00	Sunday	<0.35	
Sunday, 9 September 2018	7:00	Sunday	<0.35	
Sunday, 9 September 2018	19:00	Sunday	<0.35	
Sunday, 9 September 2018	19:00	Sunday	<0.35	

Monday, 10 September 2018	19:00	Evening	<0.35	
Tuesday, 11 September 2018	7:00	Day	<0.35	
Tuesday, 11 September 2018	7:00	Day	<0.35	
Wednesday, 12 September 2018	7:00	Day	<0.35	
Wednesday, 12 September 2018	7:00	Day	<0.35	
Thursday, 13 September 2018	7:00	Day	<0.35	
Thursday, 13 September 2018	18:45	Evening	<0.35	
Thursday, 13 September 2018	18:50	Evening	<0.35	
Thursday, 13 September 2018	18:50	Evening	<0.35	
Friday, 14 September 2018	6:40	Night	<0.35	
Friday, 14 September 2018	18:40	Evening	<0.35	
Friday, 14 September 2018	18:40	Evening	<0.35	
Saturday, 15 September 2018	6:50	Night	<0.35	
Saturday, 15 September 2018	6:50	Night	<0.35	
Saturday, 15 September 2018	19:00	Evening	<0.35	
Saturday, 15 September 2018	19:00	Evening	<0.35	
Sunday, 16 September 2018	19:00	Sunday	<0.35	
Monday, 17 September 2018	19:00	Evening	<0.35	
Tuesday, 18 September 2018	6:40	Night	<0.35	
Tuesday, 18 September 2018	19:00	Evening	<0.35	
Tuesday, 18 September 2018	19:00	Evening	<0.35	
Wednesday, 19 September 2018	19:00	Evening	<0.35	
Thursday, 20 September 2018	7:00	Day	<0.35	
Friday, 21 September 2018	7:00	Day	<0.35	
Friday, 21 September 2018	19:00	Evening	<0.35	
Saturday, 22 September 2018	7:00	Day	<0.35	
Saturday, 22 September 2018	20:00	Evening	0.408	<88
Saturday, 22 September 2018	20:00	Evening	0.408	<88
Sunday, 23 September 2018	18:00	Sunday	<0.35	
Monday, 24 September 2018	6:30	Night	<0.35	
Wednesday, 26 September 2018	6:50	Night	<0.35	
Thursday, 27 September 2018	6:50	Night	<0.35	
Friday, 28 September 2018	6:45	Night	<0.35	
Friday, 28 September 2018	6:45	Night	<0.35	
Friday, 28 September 2018	14:10	Day	<0.35	
Saturday, 29 September 2018	6:50	Night	<0.35	
Saturday, 29 September 2018	14:40	Day	0.402	<88
Sunday, 30 September 2018	7:00	Sunday	<0.35	
Sunday, 30 September 2018	7:00	Sunday	<0.35	

Air Quality Monitoring

The Company has two High Volume Air Samplers (HVAS), designed to sample Particulate matter less than 10 µm (PM₁₀) or Total Suspended Particulate (TSP) matter and two Dust Deposition Gauges (DDG). Refer to Figure 5 for location of the sampling points. A summary of the PA conditions associated with these monitoring points is presented in Table 10.

Table 10. Summary of Project Approval conditions associated with dust monitoring.

Pollutant	Averaging Period	Limits
TSP	Annual	90 $\mu\text{g}/\text{m}^3$
PM ₁₀	Annual	30 $\mu\text{g}/\text{m}^3$
PM ₁₀	24 Hour	50 $\mu\text{g}/\text{m}^3$
Deposited Dust	Annual	2 g/m ² /month (Max. increase)
	Annual	4 g/m ² /month (Max. total)

Results for air quality monitoring conducted this month have been summarised in Table 11.

No exceedances were recorded this month.

Table 11. Summary of air quality monitoring results for the month.

Pollutant	Unit	Limit	Averaging Period	Result
TSP	$\mu\text{g}/\text{m}^3$	90	Annual	49.82
PM-10 ($\mu\text{g}/\text{m}^3$)	$\mu\text{g}/\text{m}^3$	30	Annual	25.45
	$\mu\text{g}/\text{m}^3$	50	4/09/2018	7.00
	$\mu\text{g}/\text{m}^3$	50	10/09/2018	14.00
	$\mu\text{g}/\text{m}^3$	50	16/09/2018	12.00
	$\mu\text{g}/\text{m}^3$	50	22/09/2018	15.00
	$\mu\text{g}/\text{m}^3$	39	28/09/2018	19.00
Deposited Dust (DDG1)	g/m ² /month	4	Annual	3.29
Deposited Dust (DDG2)	g/m ² /month	4	Annual	2.78

Gold Room Stack Monitoring

The Company has two licenced gold room stack monitoring points (Figure 1). A summary of the licence conditions associated with this licence point is presented in Table 12.

Table 12. Summary of EPL 20189 conditions associated with gold room stack monitoring.

EPA ID No.	Monitoring Frequency
24	Yearly
39	
Pollutant	
	Nitric Oxide (mg/m^3)

Gold Room stack monitoring is conducted on an annual basis. Table 13 is a summary of the annual monitoring which was conducted on 20 Sep 2018. No exceedances were recorded.

Table 13 Summary of gold room stack monitoring conducted in Sep 2018.

EPA ID No.	Nitric Oxide (mg/m^3)
24	<4
39	5.8

Concentrate Transport

The Company is licenced to transport 50,000 tpa of lead/zinc concentrate between 0700 and 2200. The company is limited to eight truck movements per day (entering and leaving the site) averaged over a calendar month. A summary of concentrate haulage operations is presented in Table 14.

Table 14. Summary of the concentrate truck movements from the Hera Mine to Hermidale rail siding for the month.

Date	Time	Dry Tonnes
1/09/2018	07:10:00	48.31
1/09/2018	07:15:00	48.19
1/09/2018	10:00:00	48.38
1/09/2018	10:15:00	48.92
1/09/2018	11:20:00	48.60
1/09/2018	13:00:00	48.17
1/09/2018	14:30:00	49.24
1/09/2018	14:45:00	49.03
1/09/2018	15:00:00	48.28
2/09/2018	07:30:00	48.82
2/09/2018	07:45:00	48.75
2/09/2018	10:45:00	49.11
2/09/2018	10:50:00	48.45
2/09/2018	11:30:00	48.57
2/09/2018	13:30:00	49.18
2/09/2018	13:50:00	48.73
2/09/2018	14:50:00	48.55
3/09/2018	11:00:00	48.83
3/09/2018	12:40:00	48.60
3/09/2018	14:00:00	48.65
3/09/2018	16:15:00	48.73
4/09/2018	07:30:00	48.51
4/09/2018	08:30:00	48.42
5/09/2018	11:20:00	24.30
5/09/2018	14:20:00	48.65
5/09/2018	16:00:00	48.47
6/09/2018	07:20:00	48.60
6/09/2018	10:09:00	48.71
6/09/2018	14:11:00	48.60
7/09/2018	07:00:00	48.60
7/09/2018	10:04:00	47.52
7/09/2018	12:00:00	48.46
7/09/2018	12:52:00	48.60
7/09/2018	15:30:00	48.62
10/09/2018	10:00:00	48.64

10/09/2018	10:30:00	48.17
10/09/2018	13:30:00	48.85
11/09/2018	16:30:00	49.71
12/09/2018	07:15:00	49.34
12/09/2018	08:00:00	49.27
12/09/2018	10:00:00	48.50
12/09/2018	12:00:00	24.73
12/09/2018	12:30:00	49.62
12/09/2018	15:00:00	50.34
12/09/2018	15:45:00	49.77
12/09/2018	16:15:00	49.28
13/09/2018	07:15:00	48.98
13/09/2018	07:30:00	49.76
13/09/2018	08:30:00	49.45
14/09/2018	09:15:00	49.54
17/09/2018	12:38:00	49.97
17/09/2018	13:30:00	48.56
17/09/2018	14:00:00	48.75
19/09/2018	13:00:00	48.08
19/09/2018	15:30:00	47.80
21/09/2018	13:00:00	48.99
22/09/2018	07:05:00	48.65
22/09/2018	10:05:00	48.71
24/09/2018	07:45:00	49.19
24/09/2018	10:30:00	49.37
24/09/2018	12:00:00	48.13
24/09/2018	13:18:00	48.60
24/09/2018	14:30:00	48.65
24/09/2018	16:30:00	48.48
25/09/2018	07:25:00	49.37
25/09/2018	11:00:00	48.69
25/09/2018	14:10:00	49.94
25/09/2018	15:30:00	50.37
27/09/2018	07:20:00	47.92
27/09/2018	08:00:00	47.87
27/09/2018	10:10:00	49.96
27/09/2018	10:45:00	49.06
27/09/2018	12:30:00	49.85
27/09/2018	13:00:00	49.32
27/09/2018	15:45:00	49.24
27/09/2018	16:15:00	49.14
28/09/2018	10:10:00	47.98
Average Truck Movements per day		2.57
Total Tonnes		3,713

Complaints

No complaints were received this month.