

<b>Licensee</b>	Hera Resources Pty Ltd
<b>Address</b>	'The Peak, Burthong Road, Nymagee, NSW 2831
<b>Environmental Protection Licence</b>	20179
<b>Link to Licence</b>	<a href="http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32372&amp;SYSUID=1&amp;LICID=20179">http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32372&amp;SYSUID=1&amp;LICID=20179</a>
<b>Project Approval</b>	10_0191
<b>Reporting Period</b>	November 2016
<b>Date Published</b>	9 January 2017

## 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) 20179) 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).

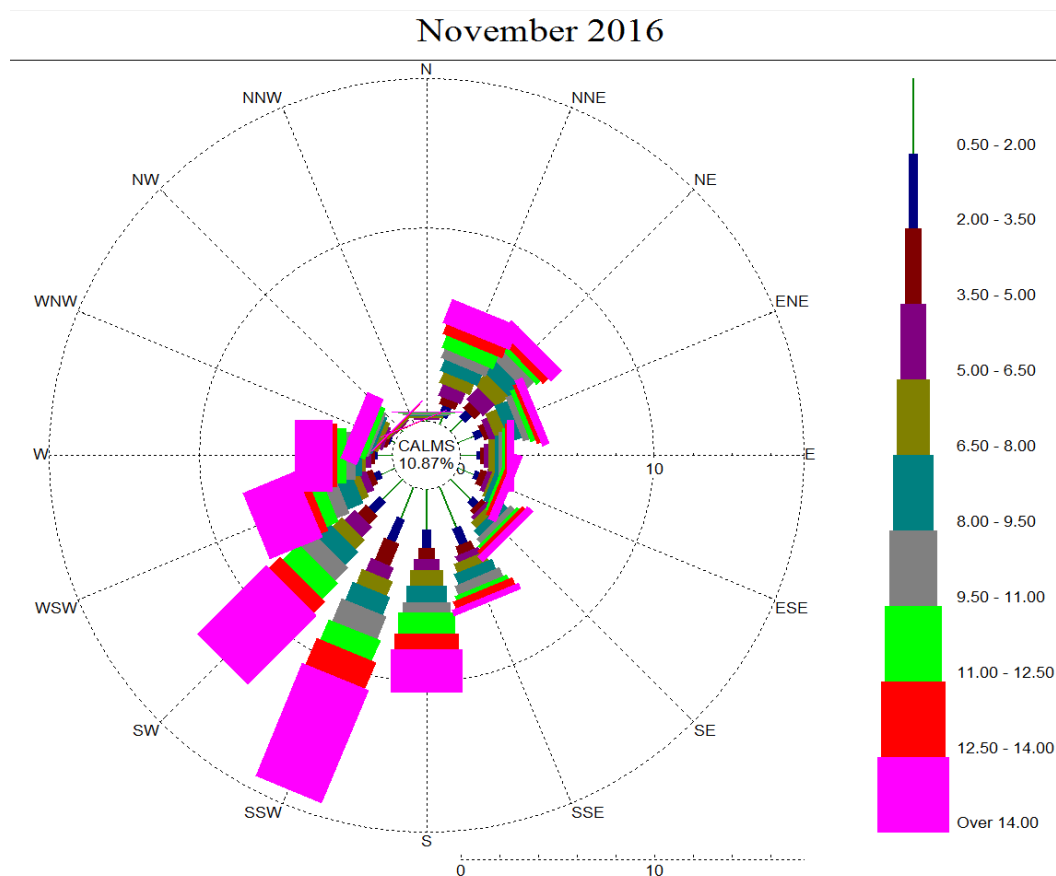
**Table 1.** Summary of EPL 20179 conditions associated with the licensed weather station.

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 in November 2016. Figure 2 is a wind rose for the month.

**Table 2.** Summary of meteorological data for November 2016.

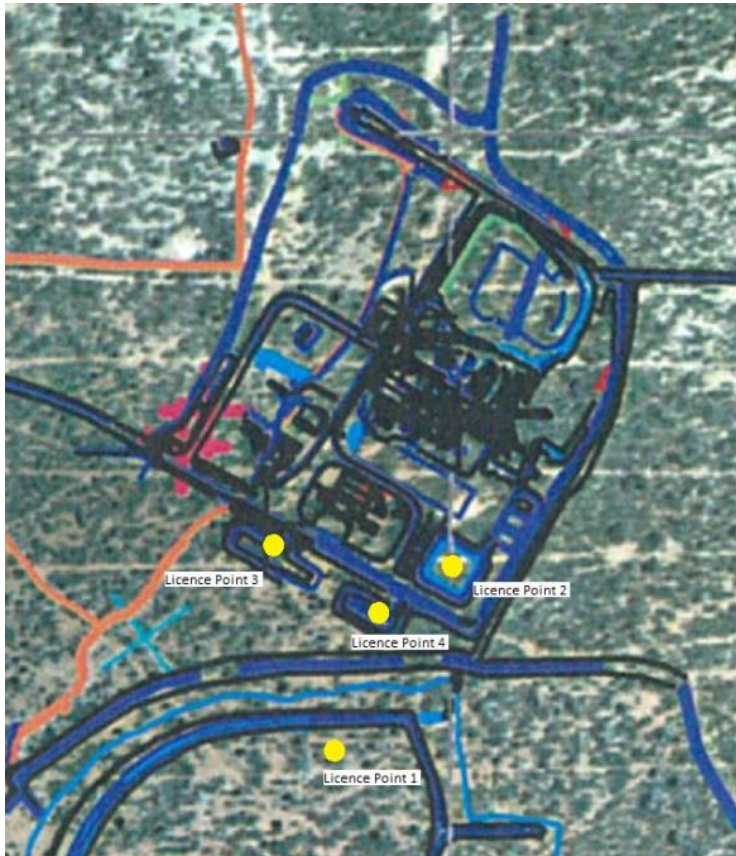
Pollutant	No. of measurements for month	Min. value	Mean value	Median value	Max. value
Air Temperature (°C)	Continuous	0.89	20.36	20.41	35.74
Wind Speed (m/s)	Continuous	0.00	2.32	2.18	8.75
Sigma Theta (°)	Continuous	0.00	24.13	19.78	98.91
Rainfall (mm)	Continuous	0.00	0.00	0.00	1.00
Relative Humidity (%)	Continuous	13.03	52.36	47.78	99.04



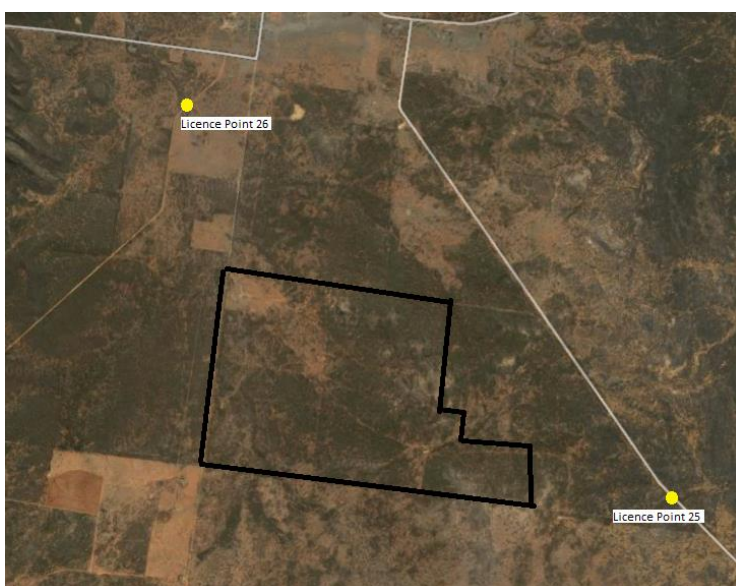
**Figure 2.** Wind rose November 2016.

## 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 Project Area.

**Table 3.** Summary of EPL 20179 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 a summary of the surface water quality results. The table has also 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.

**Table 4.** Summary of surface water quality results for November 2016.

	Analytes (mg/L)																				
	WAD Cyanide				Al	As	B	Cd	Cu	EC ( $\mu\text{S}/\text{cm}$ )	Pb	Mn	Ni	N	Oil & Grease	pH	Ag	P	TSS	Zn	
	Min.	Mean	Median	Max.																	
<b>Licence Limits</b>	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																				
<b>Licence Points</b>																					
<b>1</b>	0	0	0	0																	
<b>2</b>	0	0	0	0																	
<b>3</b>	No flow																				
<b>4</b>	No flow																				
<b>25</b>	No flow																				
<b>26</b>	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 (red points) and piezometers (purple points). A summary of the licence conditions associated with these licence points is presented in Table 5.

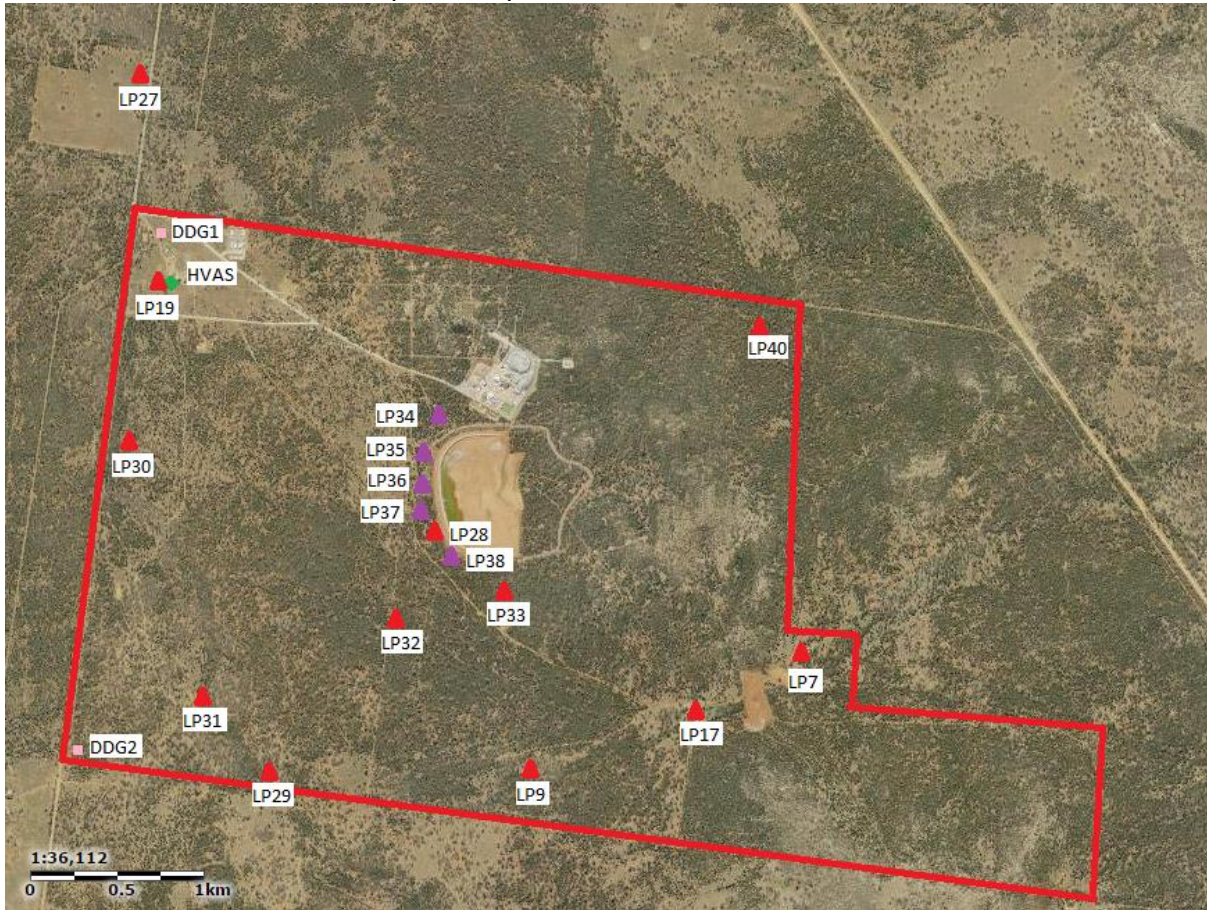


Figure 5. Licensed groundwater and air quality monitoring points.

**Table 5.** Summary of EPL 20179 conditions associated with licensed groundwater monitoring points.

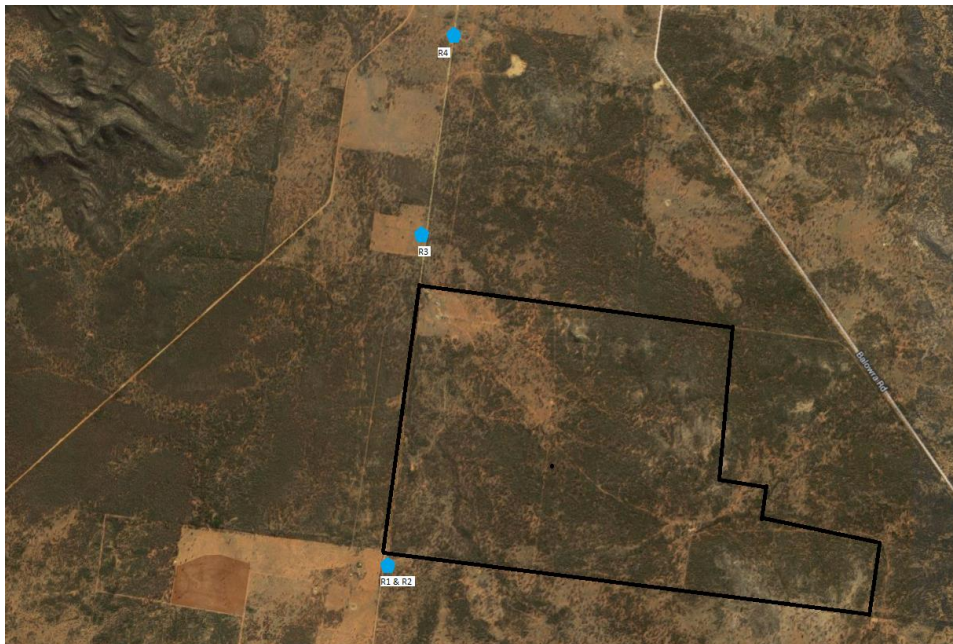
EPA ID No.	Monitoring Frequency
	Quarterly
	Pollutant
7, 9, 17, 19, 27, 28, 29, 30, 31, 32, 33, 40	Antimony (mg/L)
	Arsenic (mg/L)
	Bicarbonate (mg/L)
	Boron (mg/L)
	Cadmium (mg/L)
	Calcium (mg/L)
	Carbonate (mg/L)
	Chloride (mg/L)
	Chromium (mg/L)
	Copper (mg/L)
	Cyanide (free) (mg/L)
	Cyanide (total) (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 results were last reported in October 2016.

## 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 6.



**Figure 6.** Licensed noise monitoring locations. The black outline represents the approximate project area.

**Table 6.** Summary of EPL 20179 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

Table 7 is a summary of the noise results for the month. No exceedances were recorded for the month. Results recorded in which wind speeds were greater than 3 m/s have been greyed out as they are n/a.

**Table 7.** Summary of noise monitoring results for November 2016.

Date	Time	Site	Period of day	Wind speed (m/s)	LA1 (dB)	LAeq (dB)	Mine Audible?	Noise heard
29/11/2016	6:04	R1/R2	Night	0.11	50.2	23.58	Yes	Birds, insects, vent fan
29/11/2016	5:41	R3	Night	0.32	48.7	29.15	Yes	Birds, insects, vent fan
27/11/2016	5:18	R4	Night	0.40	46.8	20.08	Yes	Birds, insects, vent fan, car in town, heavy vehicle (mine)
27/11/2016	16:15	R1/R2	Day	2.61	46	29.68	No	Wind, birds, insects
27/11/2016	15:52	R3	Day	3.10	47.9	27.00	No	Wind, birds, insects
27/11/2016	15:31	R4	Day	2.59	46.1	26.25	No	Wind, insects, birds, aeroplane
27/11/2016	21:13	R1/R2	Evening	0.71	38.7	18.71	No	Insects, frogs, dog barking
27/11/2016	20:48	R3	Evening	0.94	48.6	27.89	Yes	Insects, vent fan, horse in scrub
27/11/2016	20:25	R4	Evening	1.31	48.9	18.34	Yes	Insects, vent fan, birds, heavy vehicle (mine)

## Blast Monitoring

The blast monitor is located adjacent to the house 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 20179 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.)
<i>(monitor for every blast)</i>	Airblast overpressure	All times	120 dB (max.)
		All times	115 dB (95% of total blasts)

The Company conducted a total of 70 blasts in November 2016. 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 November 2016.

Date	Time	Time period	Vibration (mm/s)	Overpressure (dB)
Tuesday, 1 November 2016	6:35	Night	<0.35	
Wednesday, 2 November 2016	6:45	Night	<0.35	
Wednesday, 2 November 2016	6:45	Night	<0.35	
Wednesday, 2 November 2016	6:45	Night	<0.35	
Thursday, 3 November 2016	7:00	Day	<0.35	
Friday, 4 November 2016	6:47	Night	<0.35	
Friday, 4 November 2016	6:47	Night	<0.35	
Saturday, 5 November 2016	7:05	Day	<0.35	
Saturday, 5 November 2016	7:05	Day	<0.35	
Sunday, 6 November 2016	7:05	Sunday	<0.35	
Sunday, 6 November 2016	7:05	Sunday	<0.35	
Sunday, 6 November 2016	18:30	Sunday	<0.35	
Monday, 7 November 2016	7:00	Day	<0.35	
Monday, 7 November 2016	7:00	Day	<0.35	
Monday, 7 November 2016	18:30	Evening	<0.35	
Tuesday, 8 November 2016	7:30	Day	<0.35	
Tuesday, 8 November 2016	7:30	Day	<0.35	
Tuesday, 8 November 2016	18:45	Evening	<0.35	
Wednesday, 9 November 2016	6:45	Night	<0.35	
Wednesday, 9 November 2016	6:45	Night	<0.35	
Thursday, 10 November 2016	6:35	Night	<0.35	
Thursday, 10 November 2016	6:35	Night	<0.35	
Thursday, 10 November 2016	18:45	Evening	<0.35	
Friday, 11 November 2016	6:20	Night	<0.35	
Friday, 11 November 2016	6:20	Night	<0.35	
Saturday, 12 November 2016	6:45	Night	<0.35	
Saturday, 12 November 2016	6:45	Night	<0.35	
Saturday, 12 November 2016	18:45	Evening	<0.35	
Sunday, 13 November 2016	6:45	Sunday	<0.35	
Sunday, 13 November 2016	6:45	Sunday	<0.35	
Monday, 14 November 2016	6:45	Night	<0.35	
Monday, 14 November 2016	13:30	Day	<0.35	
Tuesday, 15 November 2016	7:10	Day	<0.35	
Tuesday, 15 November 2016	7:10	Day	<0.35	
Wednesday, 16 November 2016	6:45	Night	<0.35	
Wednesday, 16 November 2016	6:45	Night	<0.35	
Thursday, 17 November 2016	7:00	Day	<0.35	
Thursday, 17 November 2016	7:00	Day	<0.35	
Friday, 18 November 2016	7:00	Day	<0.35	
Friday, 18 November 2016	7:00	Day	<0.35	
Saturday, 19 November 2016	6:40	Night	<0.35	
Saturday, 19 November 2016	6:40	Night	<0.35	
Saturday, 19 November 2016	19:12	Evening	<0.35	
Sunday, 20 November 2016	6:40	Sunday	<0.35	

Sunday, 20 November 2016	6:40	Sunday	<0.35	
Monday, 21 November 2016	7:15	Day	<0.35	
Monday, 21 November 2016	7:15	Day	<0.35	
Tuesday, 22 November 2016	6:35	Night	<0.35	
Tuesday, 22 November 2016	6:35	Night	<0.35	
Wednesday, 23 November 2016	6:30	Night	<0.35	
Wednesday, 23 November 2016	6:30	Night	<0.35	
Thursday, 24 November 2016	6:35	Night	<0.35	
Thursday, 24 November 2016	6:35	Night	<0.35	
Friday, 25 November 2016	6:30	Night	<0.35	
Friday, 25 November 2016	6:30	Night	<0.35	
Saturday, 26 November 2016	6:30	Night	<0.35	
Saturday, 26 November 2016	6:30	Night	<0.35	
Saturday, 26 November 2016	18:40	Evening	<0.35	
Saturday, 26 November 2016	18:40	Evening	<0.35	
Sunday, 27 November 2016	6:30	Sunday	<0.35	
Monday, 28 November 2016	6:30	Night	<0.35	
Monday, 28 November 2016	6:30	Night	<0.35	
Monday, 28 November 2016	14:00	Day	<0.35	
Tuesday, 29 November 2016	6:45	Night	<0.35	
Tuesday, 29 November 2016	6:45	Night	<0.35	
Tuesday, 29 November 2016	14:00	Day	<0.35	
Wednesday, 30 November 2016	6:30	Night	<0.35	
Wednesday, 30 November 2016	6:30	Night	<0.35	
Wednesday, 30 November 2016	6:30	Night	<0.35	
Wednesday, 30 November 2016	18:45	Evening	<0.35	

## Air Quality Monitoring

The Company has two High Volume Air Samplers (HVAS), either designed to sample Particulate matter less than 10 µm (PM<sub>10</sub>) 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 µg/m <sup>3</sup>
PM <sub>10</sub>	Annual	30 µg/m <sup>3</sup>
PM <sub>10</sub>	24 Hour	50 µg/m <sup>3</sup>
Deposited Dust	Annual	2 g/m <sup>2</sup> /month (Max. increase)
	Annual	4 g/m <sup>2</sup> /month (Max. total)

Results for air quality monitoring conducted in November 2016 have been summarised in Table 11. DDG1 was sent away for further analysis and 35% of the particulate matter was biological. No exceedances have been recorded this month. The HVAS did not operate on 13

November 2016 and 19 November 2016 due to an electrical storm in the area cutting the power supply.

**Table 11.** Summary of air quality monitoring results for November 2016.

Pollutant	Unit	Limit	Averaging Period	Result
TSP	µg/m <sup>3</sup>	90	Annual	29.59
PM-10 (µg/m <sup>3</sup> )	µg/m <sup>3</sup>	30	Annual	14.29
	µg/m <sup>3</sup>	50	1/11/2016	8.00
	µg/m <sup>3</sup>	50	7/11/2016	17.00
	µg/m <sup>3</sup>	50	13/11/2016	No Result (NR)
	µg/m <sup>3</sup>	50	19/11/2016	NR
	µg/m <sup>3</sup>	50	25/11/2016	12.00
Deposited Dust (DDG1)	g/m <sup>2</sup> /month	4	Annual	2.24
Deposited Dust (DDG2)	g/m <sup>2</sup> /month	4	Annual	1.19

## Gold Room Stack Monitoring

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

**Table 12.** Summary of EPL 20179 conditions associated with gold room stack monitoring monitoring.

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

Gold Room stack monitoring is conducted on an annual basis. The last sample was taken in January 2016.

## Concentrate Transport

The Company is licenced to transport 50,000 tpa of lead/zinc concentrate during daylight hours. The company is limited to two truck movements per day (entering and leaving the site) averaged over a calendar month. This month, a total of 2750 tonnes of concentrate was transported to the Hermidale rail siding with an average of 1.87 truck movements per day (Table 13).

**Table 13.** Summary of the concentrate truck movements from the Hera Mine to Hermidale rail siding for the month.

Date	Time	Company ID	Truck Dry Tonnes
2/11/2016	13:15:00	1207	48.93
2/11/2016	17:15:00	1208	49.31
3/11/2016	07:15:00	1209	48.90
3/11/2016	10:00:00	1210	48.58
3/11/2016	11:15:00	1211	48.82
3/11/2016	11:50:00	1212	48.83
3/11/2016	13:30:00	1213	48.53
3/11/2016	14:15:00	1214	49.03
3/11/2016	16:45:00	1215	48.88
4/11/2016	07:00:00	1216	49.43
4/11/2016	10:00:00	1217	49.40
4/11/2016	10:30:00	1218	49.00
4/11/2016	13:00:00	1219	49.44
4/11/2016	13:45:00	1220	48.36
5/11/2016	07:00:00	1221	49.73
5/11/2016	10:30:00	1222	49.67
6/11/2016	15:00:00	1223	48.73
7/11/2016	07:00:00	1224	49.01
7/11/2016	10:00:00	1225	49.10
7/11/2016	10:20:00	1226	48.53
7/11/2016	11:30:00	1227	49.42
7/11/2016	13:30:00	1228	48.78
7/11/2016	14:00:00	1229	49.09
7/11/2016	17:00:00	1230	49.27
8/11/2016	06:50:00	1231	49.95
8/11/2016	07:40:00	1232	49.63
8/11/2016	10:00:00	1233	49.10
8/11/2016	17:00:00	1234	48.77
10/11/2016	17:00:00	1235	48.71
11/11/2016	09:30:00	1236	49.02
15/11/2016	09:30:00	1237	48.80
15/11/2016	10:20:00	1238	48.71
15/11/2016	13:00:00	1239	49.28
15/11/2016	13:40:00	1240	49.17
15/11/2016	14:30:00	1241	48.23
16/11/2016	09:00:00	1242	48.80
16/11/2016	12:30:00	1243	48.90
17/11/2016	09:30:00	1244	49.58
18/11/2016	11:30:00	1245	49.45
21/11/2016	11:30:00	1246	49.04
22/11/2016	11:30:00	1247	49.40
22/11/2016	12:00:00	1248	49.37

24/11/2016	08:30:00	1249	49.11
24/11/2016	12:15:00	1250	48.95
25/11/2016	11:00:00	1251	49.19
25/11/2016	15:00:00	1252	49.13
26/11/2016	13:00:00	1253	49.28
26/11/2016	15:15:00	1254	49.36
27/11/2016	07:30:00	1256	49.32
27/11/2016	07:30:00	1255	49.21
27/11/2016	11:10:00	1257	49.38
28/11/2016	09:30:00	1258	48.87
28/11/2016	11:00:00	1259	49.12
28/11/2016	14:00:00	1260	49.25
30/11/2016	08:00:00	1261	50.00
30/11/2016	11:00:00	1262	49.55
<b>Average Truck Movements per day November 2016</b>		<b>1.87</b>	
<b>Total Tonnes</b>			<b>2750.40</b>

## Complaints

No complaints were received in November 2016.