

Licensee	Aurelia Metals Limited
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=20179
Project Approval	10_0191
Reporting Period	April 2015
Date Published	26/05/2015

Weather Monitoring

Aurelia Metals Limited (AMI) has one licenced weather station (licence point 23) associated with the site (**Figure 1**). A summary of the licence conditions (Environmental Protection Licence (EPL) 20179) associated with this point is presented in **Table 1**.

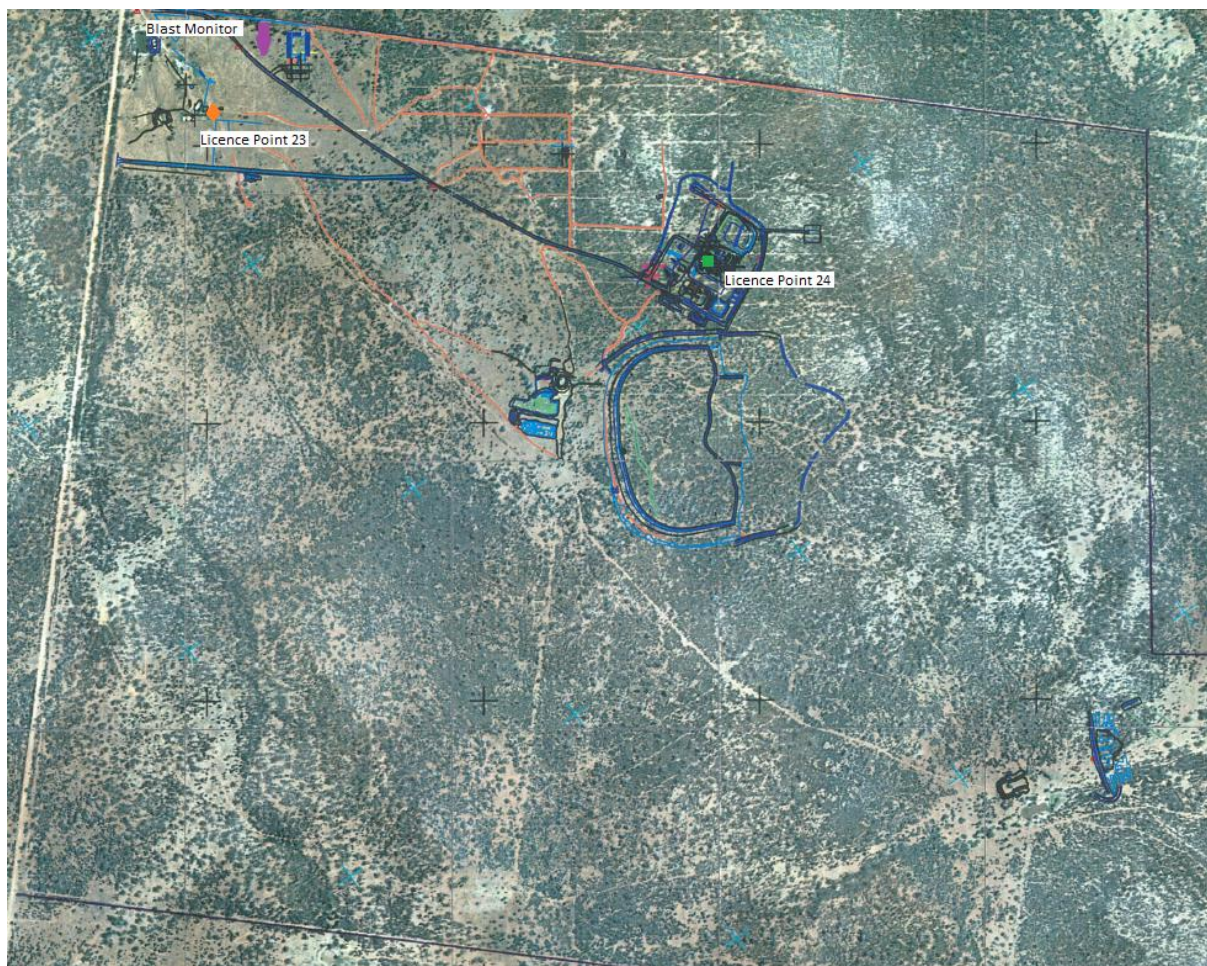


Figure 1. Location of the licence points associated with Gold Room Stack monitoring (Licence Point 24), Blast monitoring and meteorological monitoring (Licence Point 23).

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 April 2015.

Table 2. Summary of meteorological data for April 2015.

Pollutant	No. of measurements for month	Min. value	Mean value	Median value	Max. value
Air Temperature (°C)	Continuous	0.63	16.04	15.89	31.93
Wind Direction (°)	Continuous	12.91	173.04	188.82	342.14
Wind Speed (m/s)	Continuous	0.00	1.81	1.74	5.59
Sigma Theta (°)	Continuous	3.37	20.54	15.91	101.12
Rainfall (mm)	Continuous	0.00	0.01	0.00	7.80
Relative Humidity (%)	Continuous	28.16	69.89	70.29	98.54

Surface Water Monitoring

AMI has six licence points associated with surface waters. Four of these points are located within the Mining Lease (**Figure 2**) and two are located on Box creek, upstream and downstream of the lease (**Figure 3**). A summary of the licence conditions associated with these licence points is presented in **Table 3**.

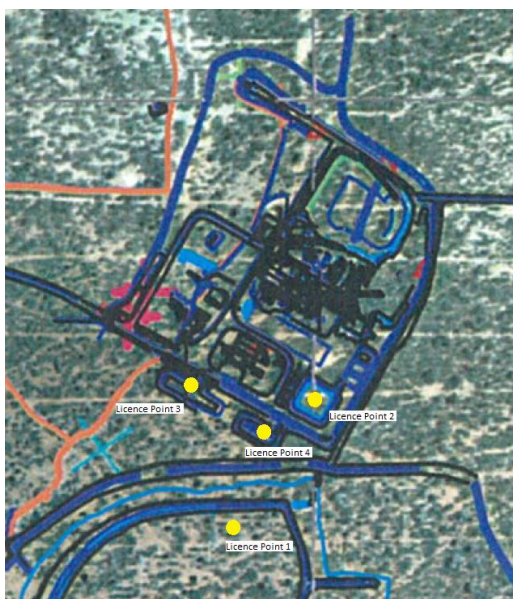


Figure 2. Licensed surface water monitoring points located onsite.

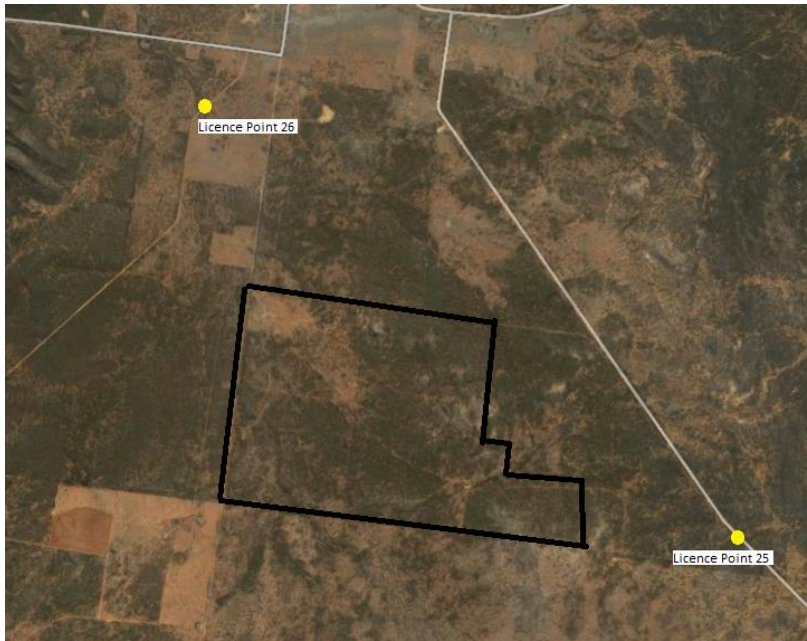


Figure 3. Licensed surface water monitoring points located offsite. The black outline represents the Mining Lease.

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 only apply 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 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. On the 4/04/2015 and the 6/04/2015 two elevated levels of WAD Cyanide were recorded during discharge to the process water dam. The results were caused by the cyanide decontamination process failing. These results were reported to the EPA on the 16/04/2015.

Table 4. Summary of surface water quality results for April 2015.

					Analytes (mg/L)												
					Al	Ar	B	Cd	Cu	EC (µS/cm)	Pb	Mn	Ni	N	Oil & Grease	pH	P
					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	0.025
	20 (90 Percentile) 30 (max.)																
	0.007																
Licence Points																	
1	0	1.15	0	10													
2	0	26.89	0	500													
3					No discharge												
4					No discharge												
25					No discharge												
26					No discharge												

Groundwater Monitoring

AMI has 13 licence points associated with ground waters. These points are located within the Mining Lease (**Figure 4**) and are a combination of observation bores and productions bores. A summary of the licence conditions associated with these licence points is presented in **Table 5**.

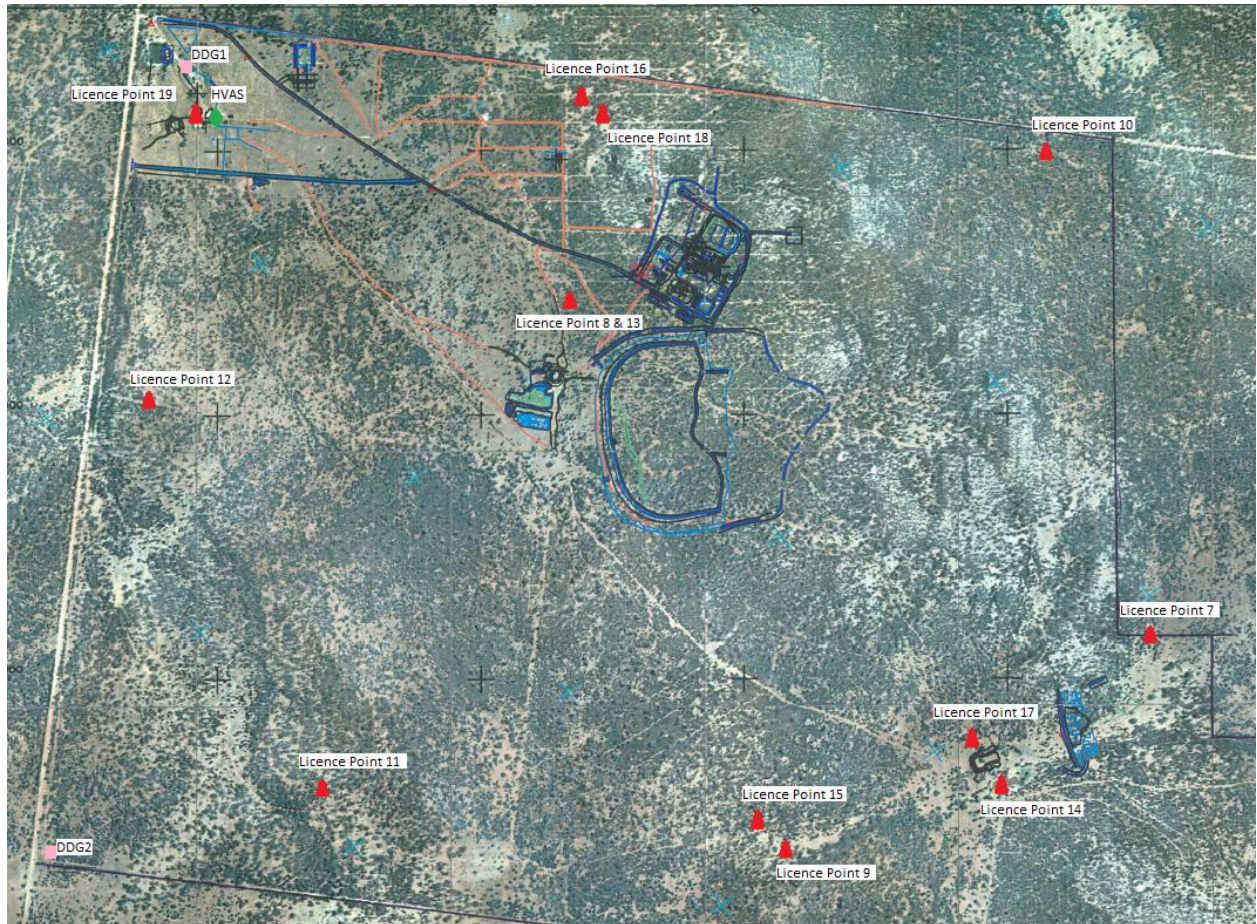


Figure 4. Licensed groundwater and air quality monitoring points.

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

EPA ID No.	Monitoring Frequency
7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	Quarterly
	Pollutant
7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19	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)
7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	Standing Water Level (m)

Results from the April 2015 groundwater quality results is presented in **Table 6**.

Table 6. Summary of groundwater quality results for April 2015.

	Analyte (mg/L)													
	Sb	As	HCO3-	B	Cd	Ca	CO3-2	Cl	Cr	Cu	CN- (Free)	CN- (Total)	CN- (WAD)	EC (mS/cm)
Licence Point														
7	0.001	<0.001	650	0.32	<0.0001	156	<1	975	<0.001	<0.001	<0.004	0.006	<0.004	4508
8	<0.001	0.007	443	0.33	<0.0001	150	<1	812	<0.001	0.003	<0.004	<0.004	<0.004	4316
9	0.001	<0.001	669	0.59	<0.0001	158	<1	864	<0.001	<0.001	<0.004	<0.004	<0.004	4879
10	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
11	<0.001	0.003	<1	0.1	0.0002	56	<1	230	<0.001	0.01	<0.004	<0.004	<0.004	5614
12														
13	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
14	0.003	0.002	544	0.36	<0.0001	98	<1	611	<0.001	<0.001	<0.004	<0.004	<0.004	3046
15	<0.001	0.002	747	0.64	<0.0001	157	<1	850	<0.001	<0.001	<0.004	<0.004	<0.004	5011
16	<0.001	<0.001	593	0.26	<0.0001	131	<1	965	<0.001	<0.001	<0.004	0.007	<0.004	4750
17	<0.001	<0.001	506	0.32	0.0002	114	<1	763	<0.001	<0.001	<0.004	<0.004	<0.004	3692
18	<0.001	0.002	367	0.35	<0.0001	187	<1	977	<0.001	0.004	<0.004	<0.004	<0.004	4999
19	<0.001	0.001	453	0.82	<0.0001	51	<1	867	<0.001	0.003	<0.004	0.006	<0.004	4036
	Analyte (mg/L)													
	Fe	Pb	Mg	Hg	Mo	Ni	pH	K	Ag	Na	Sn	TDS	Zn	SWL (m)
7	0.19	<0.001	143	<0.0001	<0.001	<0.001	6.95	15	<0.001	462	<0.001	2800	0.007	53.24
8	2.51	0.004	168	<0.0001	<0.001	0.01	6.56	21	<0.001	419	<0.001	2820	0.105	85.66
9	0.98	<0.001	195	<0.0001	<0.001	<0.001	7.43	23	<0.001	584	<0.001	3310	0.016	NR
10	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
11	486	0.008	139	<0.0001	<0.001	0.244	7.64	18	<0.001	108	<0.001	3510	13.2	NR
12														
13	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	86.2
14	<0.05	<0.001	100	<0.0001	<0.001	0.005	7.01	20	<0.001	364	<0.001	1840	0.04	78.34
15	1.52	<0.001	194	<0.0001	<0.001	0.003	7.17	29	<0.001	634	<0.001	3330	0.017	75.49
16	1.49	0.001	144	<0.0001	<0.001	0.001	7.06	14	<0.001	457	<0.001	2850	0.033	142.23
17	<0.05	<0.001	128	<0.0001	<0.001	<0.001	6.78	12	<0.001	378	<0.001	2210	0.017	72.67
18	7.56	0.002	219	<0.0001	<0.001	0.008	6.75	24	<0.001	533	<0.001	3580	0.034	95.25
19	<0.05	<0.001	82	<0.0001	<0.001	<0.001	7.14	25	<0.001	578	<0.001	2440	0.035	NR

Noise Monitoring

AMI has four licenced locations (R1, R2, R3 and R4) monitoring points located along the Burthong Road (**Figure 5**). The locations are strategically placed near AMI's nearest neighbours. R1 and R2 are measured from the same point as both neighbours are located very close to each other. A summary of the EPL and Project Approval (PA) conditions associated with these licenced points is presented in **Table 7**.

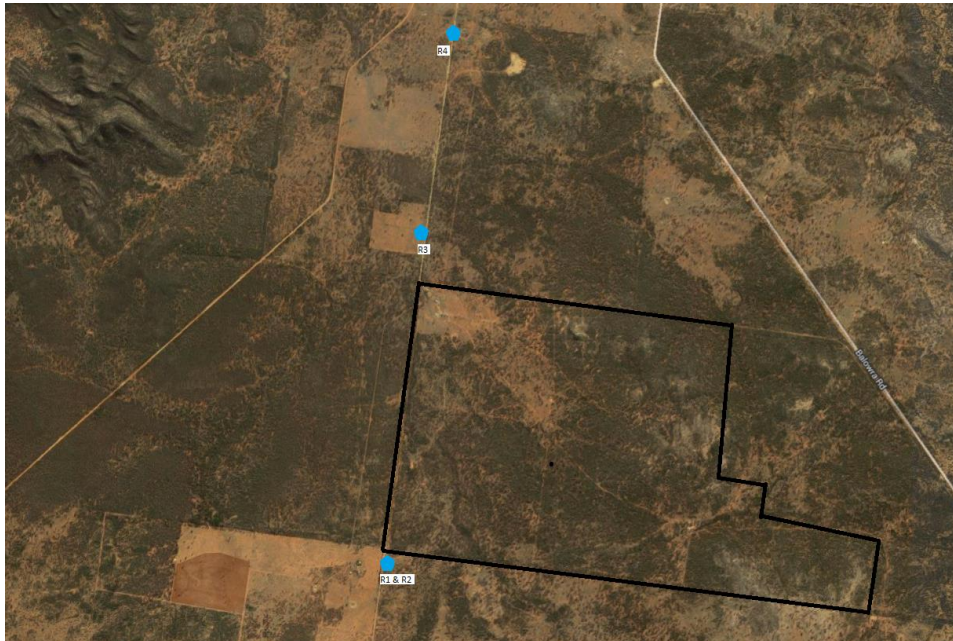


Figure 5. Licenced noise monitoring locations. The black outline represents the Mining Lease.

Table 7. 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
	Aluminium	LA1 (1 minute) 45 dB

Table 8 is a summary of the noise results for the month. A number of results were recorded above licence limits. However, as wind speeds were greater than 3 meters per second (m/s) at 10 meters (m) above ground level, the limits do not apply as per licence requirements.

Table 8. Summary of noise monitoring results for April 2015.

Date	Time	Site	Period of day	Wind speed (m/s)	LA1 (dB)	LAeq (dB)	Mine Audible?	Noise heard
17/04/2015	22:01	R1/R2	Night	2.26848	39	28.78982	Yes	wind, insects, vent fan
17/04/2015	23:04	R3	Night	3.8781	46.5	31.82743	Yes	wind, insects, vent fan, gun shots in distance
17/04/2015	22:44	R4	Night	3.52226	47.6	34.40736	No	wind, insects
17/04/2015	17:34	R1/R2	Day	1.23988	n/a	27.48406	Yes	vent fan, birds, wind, noise from mine very audible (trucks, crusher, reverse beeper)
17/04/2015	17:11	R3	Day	1.4595	n/a	24.85752	Yes	Birds, crickets, wind, vent fan, car in distance
17/04/2015	16:49	R4	Day	2.53814	n/a	27.65482	No	wind, crickets, aeroplane x3, birds, car in distance, reverse beeper from town direction
17/04/2015	21:44	R1/R2	Evening	2.50756	n/a	30.0582	Yes	wind, insects, vent fan, crusher, aeroplane
17/04/2015	21:19	R3	Evening	2.61598	n/a	26.41989	Yes	insects, vent fan, wind, aeroplane
17/04/2015	20:54	R4	Evening	2.2796	n/a	24.88623	No	wind, insects, car in distance x2

Blast Monitoring

AMI is required to monitor blasting. The monitor is located to the east of the personnel accommodation (**Figure 1**). A summary of the EPL and PA conditions associated with this licenced point are presented in **Table 9**.

Table 9. Summary of EPL 20179 and PA 10_0191 conditions associated with blast monitoring.

Location	Pollutant	Time Period	Limits
Blast monitoring	Ground vibration <i>(monitor for every blast)</i>	All times	10 mm/s (max.)
		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 (95% of total blasts)
Blast monitoring	Airblast overpressure <i>(monitor for every blast)</i>	All times	120 dB (max.)
		All times	115 dB (95% of total blasts)

AMI conducted a total of 18 blasts in April 2015. The characteristics of each blast are presented in **Table 10**.

Table 10. Summary of blast monitoring results for April 2015.

Date	Time	Vibration (mm/s)	Overpressure (dB)	Comments
2/04/2015	18:45	<0.350		
3/04/2015	12:00	<0.350		
4/04/2015	18:20	0.709	<88	
4/04/2015	12:00	<0.350		
7/4/2015	11:30	0.694	95.92	
8/4/2015	18:20	<0.350		
11/04/2015	18:00	0.835	91.48	
12/04/2015	6:40	<0.350		
17/04/2015	22:30	<0.350		
18/04/2015	18:30	<0.350		
18/04/2015	0:01	<0.350		
19/04/2015	12:40	<0.350		
22/04/2015	13:15	0.482	102.8	
23/04/2015	14:00	0.67	91.48	
24/04/2015	14:15	0.838	93.98	
25/04/2015	15:30	0.933	91.48	
29/04/2015	18:45	1.829	91.48	
30/04/2015	18:45	<0.350		

Air Quality Monitoring

AMI has two High Volume Air Samplers (HVAS), each designed to sampled either Particulate matter < 10 µm (PM₁₀) or Total Suspended Particulate (TSP) matter. AMI has two Dust Deposition Gauges (DDG). Refer to **Figure 4** for location of the sampling points. A summary of the Project Approval conditions associated with these monitoring points is presented in **Table 11**.

Table 11. Summary of Project Approval conditions associated with dust monitoring.

Pollutant	Averaging Period	Limits
TSP	Annual	90 µg/m ³
PM ₁₀	Annual	30 µg/m ³
PM ₁₀	24 Hour	50 µg/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 in April 2015 have been summarised in **Table 12**. On the 6/03/2015 an elevated PM₁₀ result was recorded. After further investigation it was determine that this result was not caused by mining activities. The prevailing wind conditions at the time were SW to SSW. The Hera Mine is located to the east of the AMI Weather Station.

Table 12. Summary of air quality monitoring results for April 2015.

Pollutant	Unit	Limit	Averaging Period	Result
TSP	µg/m ³	90	Annual	22.98
PM-10 (µg/m ³)	µg/m ³	30	Annual	11.82
	µg/m ³	50	5/04/2015	8.00
	µg/m ³	50	11/04/2015	5.00
	µg/m ³	50	17/04/2015	16.00
	µg/m ³	50	23/04/2015	6.00
	µg/m ³	50	29/04/2015	9.00
Deposited Dust (DDG1)	g/m ² /month	4	Annual	2.75
Deposited Dust (DDG2)	g/m ² /month	4	Annual	1.87

* Elevated result not caused by mining activities.

Gold Room Stack Monitoring

AMI has one licenced gold room stack monitoring (**Figure 1**). A summary of the licence conditions associated with this licence Point is presented in **Table 13**.

Table 13. Summary of EPL 20179 conditions associated with gold room stack monitoring monitoring.

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

Gold Room stack monitoring is conducted on an annual basis. The last sample was taken in November 2014.

Complaints

No complaints were received in April 2015.