



Evolution
MINING

Environmental Monitoring Data

March 2018

EPL No: 11912

Licensee: Evolution Mining (Cowel) Pty Limited

Address: PO Box 210 West Wyalong NSW 2671

<http://www.epa.nsw.gov.au/licensing-and-regulation/public-registers>



Dust

Monitoring Point 1 «McIntocks Shed»

Dust monitoring, Dust gauge located on private property to the west of ML1535 boundary

Frequency	Date Sampled	Date Obtained	Date Published	Particulates (µg/m ³ /mth)	Comments
Monthly	05/01/2018	20/02/2018	20/02/2018	9.2	Some bux
Monthly	28/02/2018	16/03/2018	20/03/2018	1.8	
Monthly	28/03/2018	19/04/2018	19/04/2018	-	Sample broken in transit by courier
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				3	
Lowest Value				1.8	
Mean of Sample				5.5	
Highest Sample Value				9.2	
Median				5.5	

Monitoring Point 2 «Site Office»

Dust monitoring, Dust gauge located on private property to the south of ML1535 boundary

Frequency	Date Sampled	Date Obtained	Date Published	Particulates (µg/m ³ /mth)	Comments
Monthly	05/01/2018	20/02/2018	20/02/2018	6.0	Some Algae
Monthly	28/02/2018	16/03/2018	20/03/2018	1.8	
Monthly	28/03/2018	19/04/2018	19/04/2018	11.7	Dark brown, some bux
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				3	
Lowest Value				1.8	
Mean of Sample				6.5	
Highest Sample Value				11.7	
Median				6.0	

Monitoring Point 3 «D006»

Dust monitoring, Dust gauge located on private property to the east of ML1535 boundary

Frequency	Date Sampled	Date Obtained	Date Published	Particulates (µg/m ³ /mth)	Comments
Monthly	05/01/2018	20/02/2018	20/02/2018	3.8	
Monthly	28/02/2018	16/03/2018	20/03/2018	1.5	
Monthly	28/03/2018	19/04/2018	19/04/2018	3.5	
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				3	
Lowest Value				1.5	
Mean of Sample				2.9	
Highest Sample Value				3.8	
Median				3.5	

Monitoring Point 4 «D009»

Dust monitoring, Dust gauge located on private property to the south of ML1535 boundary

Frequency	Date Sampled	Date Obtained	Date Published	Particulates (µg/m ³ /mth)	Comments
Monthly	05/01/2018	20/02/2018	20/02/2018	5.0	
Monthly	28/02/2018	16/03/2018	20/03/2018	1.5	
Monthly	28/03/2018	19/04/2018	19/04/2018	1.6	
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				3	
Lowest Value				1.5	
Mean of Sample				2.7	
Highest Sample Value				5.0	
Median				1.6	

Monitoring Point 5 «Site S2»

Dust monitoring, Dust gauge located within ML1535 and north of the open pit

Frequency	Date Sampled	Date Obtained	Date Published	Particulates (µg/m ³ /mth)	Comments
Monthly	05/01/2018	20/02/2018	20/02/2018	10.7	Algae
Monthly	01/03/2018	16/03/2018	20/03/2018	4.0	
Monthly	28/03/2018	19/04/2018	19/04/2018	2.3	
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				3	
Lowest Value				2.3	
Mean of Sample				5.7	
Highest Sample Value				10.7	
Median				4.0	



Surface Water

Monitoring Point: 12 <D1>

Stormwater quality monitoring, Northern waste emplacement contained water storage

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Comments
Monthly	10/01/2017	10/01/2017	20/02/2018	8.2	6814	17	
Monthly	07/02/2018	07/02/2018	20/03/2018	8.2	7416	24	
Monthly	12/03/2018	19/03/2018	19/04/2018	8.4	8440	24	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				3	3	3	
Lowest Value				8.2	6814	17	
Mean of Sample				8.3	7557	22	
Highest Sample Value				8.4	8440	24	
Median				8.2	7416	24	

Monitoring Point: 13 <D4>

Stormwater quality monitoring, Southern waste emplacement contained water storage

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Comments
Monthly	10/01/2017	10/01/2017	20/02/2018	8.5	2728	18	
Monthly	07/02/2018	07/02/2018	20/03/2018	8.4	3170	14	
Monthly	12/03/2018	19/03/2018	19/04/2018	8.8	4250	18	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				3	3	3	
Lowest Value				8.4	2728	14	
Mean of Sample				8.6	3483	17	
Highest Sample Value				8.8	4250	18	
Median				8.5	3170	18	



Groundwater

Monitoring Point: 30 <P417A>
Groundwater quality monitoring. Piezometer located down gradient of southern tailings storage facility

Table with 7 columns: Frequency, Date Sampled, Date Obtained, Date Published, Field - pH (units), Field - Electrical Conductivity (µS/cm), SWL (m), Comments. Includes monthly data for 2018 and summary statistics.

Table with 22 columns: Frequency, Date Sampled, Date Obtained, Date Published, Alkalinity (mg/L), Antimony (mg/L), Arsenic (mg/L), Cadmium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide WAD (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Molybdenum (mg/L), Nickel (mg/L), Potassium (mg/L), Selenium (mg/L), Sodium (mg/L), Sulphate (mg/L), Total Dissolved Solids (mg/L), Total Hardness (mg/L), Zinc (mg/L), Comments.

Monitoring Point: 31 <P417B>

Table with 7 columns: Frequency, Date Sampled, Date Obtained, Date Published, Field - pH (units), Field - Electrical Conductivity (µS/cm), SWL (m), Comments. Includes monthly data for 2018 and summary statistics.

Table with 22 columns: Frequency, Date Sampled, Date Obtained, Date Published, Alkalinity (mg/L), Antimony (mg/L), Arsenic (mg/L), Cadmium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide WAD (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Molybdenum (mg/L), Nickel (mg/L), Potassium (mg/L), Selenium (mg/L), Sodium (mg/L), Sulphate (mg/L), Total Dissolved Solids (mg/L), Total Hardness (mg/L), Zinc (mg/L), Comments.

Monitoring Point: 32 <P418A>
Groundwater quality monitoring. Piezometer located down gradient of northern tailings storage facility

Table with 7 columns: Frequency, Date Sampled, Date Obtained, Date Published, Field - pH (units), Field - Electrical Conductivity (µS/cm), SWL (m), Comments. Includes monthly data for 2018 and summary statistics.

Table with 22 columns: Frequency, Date Sampled, Date Obtained, Date Published, Alkalinity (mg/L), Antimony (mg/L), Arsenic (mg/L), Cadmium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide WAD (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Molybdenum (mg/L), Nickel (mg/L), Potassium (mg/L), Selenium (mg/L), Sodium (mg/L), Sulphate (mg/L), Total Dissolved Solids (mg/L), Total Hardness (mg/L), Zinc (mg/L), Comments.

Monitoring Point: 33 <P418B>
Groundwater quality monitoring. Piezometer located down gradient of northern tailings storage facility

Table with 7 columns: Frequency, Date Sampled, Date Obtained, Date Published, Field - pH (units), Field - Electrical Conductivity (µS/cm), SWL (m), Comments. Includes monthly data for 2018 and summary statistics.

Table with 22 columns: Frequency, Date Sampled, Date Obtained, Date Published, Alkalinity (mg/L), Antimony (mg/L), Arsenic (mg/L), Cadmium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide WAD (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Molybdenum (mg/L), Nickel (mg/L), Potassium (mg/L), Selenium (mg/L), Sodium (mg/L), Sulphate (mg/L), Total Dissolved Solids (mg/L), Total Hardness (mg/L), Zinc (mg/L), Comments.



Ambient Noise

Q1 Noise Monitoring

Daytime Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	07/02/2018	22/02/2018	20/03/2018	25	23	-	
N11	07/02/2018	22/02/2018	20/03/2018	<20	<20	39	
N09	07/02/2018	22/02/2018	20/03/2018	<20	<20	39	
N10	07/02/2018	22/02/2018	20/03/2018	<20	<20	38	
N12	07/02/2018	22/02/2018	20/03/2018	<20	<20	38	
N15	07/02/2018	22/02/2018	20/03/2018	<20	<20	38	
N17	07/02/2018	22/02/2018	20/03/2018	<20	<20	37	
N16	07/02/2018	22/02/2018	20/03/2018	<20	<20	37	

Evening Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	07/02/2018	22/02/2018	20/03/2018	20	22	-	
N11	06/02/2018	22/02/2018	20/03/2018	<20	<20	39	
N09	06/02/2018	22/02/2018	20/03/2018	<20	<20	39	
N10	06/02/2018	22/02/2018	20/03/2018	<20	<20	38	
N12	06/02/2018	22/02/2018	20/03/2018	<20	<20	38	
N15	07/02/2018	22/02/2018	20/03/2018	<20	<20	38	
N17	06/02/2018	22/02/2018	20/03/2018	<20	<20	37	
N16	07/02/2018	22/02/2018	20/03/2018	20	<20	37	

Night time Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	07/02/2018	22/02/2018	20/03/2018	28	26	-	
N11	06/02/2018	22/02/2018	20/03/2018	<20	<20	39	
N09	07/02/2018	22/02/2018	20/03/2018	20	20	39	
N10	06/02/2018	22/02/2018	20/03/2018	<20	<20	38	
N12	07/02/2018	22/02/2018	20/03/2018	<20	<20	38	
N15	08/02/2017	22/02/2018	20/03/2018	23	24	38	
N17	06/02/2018	22/02/2018	20/03/2018	<20	<20	37	
N16	08/02/2017	22/02/2018	20/03/2018	18	20	37	

n/a - Mine noise emission not discernible

Q2 Noise Monitoring

Daytime Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01						-	
N11						39	
N09						39	
N10						38	
N12						38	
N15						38	
N17						37	
N16						37	

Evening Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01						-	
N11						39	
N09						39	
N10						38	
N12						38	
N15						38	
N17						37	
N16						37	

Night time Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01						-	
N11						39	
N09						39	
N10						38	
N12						38	
N15						38	
N17						37	
N16						37	

N/A - Mine noise emission not discernible



Ambient Noise

Q3 Noise Monitoring

Daytime Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01						-	
N11						39	
N09						39	
N10						38	
N12						38	
N15						38	
N17						37	
N16						37	

Evening Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01						-	
N11						39	
N09						39	
N10						38	
N12						38	
N15						38	
N17						37	
N16						37	

Night time Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01						-	
N11						39	
N09						39	
N10						38	
N12						38	
N15						38	
N17						37	
N16						37	

N/A - Mine noise emission not discernible

Q4 Noise Monitoring

Daytime Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01						-	
N11						39	
N09						39	
N10						38	
N12						38	
N15						38	
N17						37	
N16						37	

Evening Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01						-	
N11						39	
N09						39	
N10						38	
N12						38	
N15						38	
N17						37	
N16						37	

Night time Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA _{eq(15min)} - dBA		Noise Criteria LA _{eq(15min)} - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01						-	
N11						39	
N09						39	
N10						38	
N12						38	
N15						38	
N17						37	
N16						37	



Blasting & Ground Vibration

Monitoring Point: BM01

Blast monitoring, Airblast overpressure and ground vibration peak particle velocity recorded at private residence to the south-east of ML1535 boundary

Blast Number	Day/Date	Time	Date Obtained	Date Published	Trigger Threshold		BM01 at Blast Time		Comments
					Ground Vibration (mm/s)	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)	Airblast Overpressure (dB(L))	
JANUARY									
876-30	Wednesday, 3 January 2018	12:25:51	05/02/2018	20/02/2018	5	115	0.10	91.5	
876-32	Thursday, 4 January 2018	15:07:17	05/02/2018	20/02/2018	5	115	0.10	88.0	
876-33	Monday, 8 January 2018	10:19:38	05/02/2018	20/02/2018	5	115	0.10	94.0	
876-34	Tuesday, 9 January 2018	12:27:08	05/02/2018	20/02/2018	5	115	0.10	91.5	
876-35	Wednesday, 10 January 2018	12:29:00	05/02/2018	20/02/2018	5	115	0.10	88.0	
876-40	Thursday, 11 January 2018	12:31:52	05/02/2018	20/02/2018	5	115	0.10	91.5	
876-29	Saturday, 13 January 2018	12:35:54	05/02/2018	20/02/2018	5	115	0.10	107.5	
867-2	Tuesday, 16 January 2018	15:13:29	05/02/2018	20/02/2018	5	115	0.10	88.0	
876-28	Tuesday, 16 January 2018	15:18:42	05/02/2018	20/02/2018	5	115	0.10	91.5	
867-12	Friday, 19 January 2018	12:30:10	05/02/2018	20/02/2018	5	115	0.10	88.0	
867-3	Monday, 22 January 2018	12:23:32	05/02/2018	20/02/2018	5	115	0.10	88.0	
867-513	Wednesday, 24 January 2018	12:55:24	05/02/2018	20/02/2018	5	115	0.10	102.8	
867-14	Thursday, 25 January 2018	12:30:28	05/02/2018	20/02/2018	5	115	0.10	91.5	
867-15	Sunday, 28 January 2018	12:29:39	05/02/2018	20/02/2018	1	95	0.10	91.5	
867-512	Tuesday, 30 January 2018	12:25:32	05/02/2018	20/02/2018	5	115	0.10	97.5	
867-16	Tuesday, 30 January 2018	12:25:32	05/02/2018	20/02/2018	5	115	0.10	97.5	
FEBRUARY									
867-509	Thursday, 1 February 2018	12:24:54	06/03/2018	20/03/2018	5	115	0.10	94.0	
867-17	Friday, 2 February 2018	12:31:37	06/03/2018	20/03/2018	5	115	0.13	91.5	
867-510a	Tuesday, 6 February 2018	12:35:33	06/03/2018	20/03/2018	5	115	0.10	95.9	
867-511a	Tuesday, 6 February 2018	12:35:33	06/03/2018	20/03/2018	5	115	0.10	95.9	
867-4	Tuesday, 6 February 2018	12:38:58	06/03/2018	20/03/2018	5	115	0.10	91.5	
867-27	Thursday, 8 February 2018	12:26:37	06/03/2018	20/03/2018	5	115	0.10	94.0	
867-516	Saturday, 10 February 2018	12:31:30	06/03/2018	20/03/2018	5	115	0.10	95.8	
867-6	Monday, 12 February 2018	12:26:56	06/03/2018	20/03/2018	5	115	0.11	91.5	
867-515	Monday, 12 February 2018	12:26:56	06/03/2018	20/03/2018	5	115	0.11	91.5	
867-18	Tuesday, 13 February 2018	12:31:42	06/03/2018	20/03/2018	5	115	0.10	91.5	
867-514	Tuesday, 13 February 2018	12:31:42	06/03/2018	20/03/2018	5	115	0.10	91.5	
867-7-13	Thursday, 15 February 2018	12:54:32	06/03/2018	20/03/2018	5	115	0.10	91.5	
867-26	Saturday, 17 February 2018	12:28:04	06/03/2018	20/03/2018	5	115	0.10	88.0	
867-25	Tuesday, 20 February 2018	12:36:18	06/03/2018	20/03/2018	1	115	0.10	104.9	
867-508	Tuesday, 20 February 2018	12:36:18	06/03/2018	20/03/2018	5	115	0.10	104.9	
867-10-11	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.10	94.0	
867-502	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.10	94.0	
867-503	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.10	94.0	
867-504	Friday, 23 February 2018	12:21:36	06/03/2018	20/03/2018	5	115	0.11	95.9	
867-28	Saturday, 24 February 2018	12:19:44	06/03/2018	20/03/2018	5	115	0.11	95.9	
867-24	Monday, 26 February 2018	12:31:13	06/03/2018	20/03/2018	5	115	0.10	101.9	
867-507	Monday, 26 February 2018	12:31:13	06/03/2018	20/03/2018	5	115	0.10	101.9	
867-501	Wednesday, 28 February 2018	12:29:42	06/03/2018	20/03/2018	5	115	0.10	88.0	
867-5	Wednesday, 28 February 2018	12:29:42	06/03/2018	20/03/2018	5	115	0.10	88.0	
MARCH									
867-23	Friday, 2 March 2018	12:30:28	09/04/2018	19/04/2018	5	115	0.10	88.0	
867-506	Friday, 2 March 2018	12:30:28	09/04/2018	19/04/2018	5	115	0.10	88.0	
867-505	Saturday, 3 March 2018	12:23:00	09/04/2018	19/04/2018	5	115	0.10	101.9	
867-9	Saturday, 3 March 2018	12:23:14	09/04/2018	19/04/2018	5	115	0.10	101.9	
867-19	Monday, 5 March 2018	12:21:18	09/04/2018	19/04/2018	5	115	0.11	88.0	
867-21	Wednesday, 7 March 2018	12:20:12	09/04/2018	19/04/2018	5	115	0.11	91.5	
867-8a	Thursday, 8 March 2018	12:39:11	09/04/2018	19/04/2018	5	115	0.10	88.0	
867-22	Friday, 9 March 2018	12:30:21	09/04/2018	19/04/2018	5	115	0.10	88.0	
867-20	Monday, 12 March 2018	12:33:16	09/04/2018	19/04/2018	5	115	0.10	88.0	
858-1	Tuesday, 13 March 2018	12:32:15	09/04/2018	19/04/2018	5	115	0.11	95.9	
867-39	Friday, 16 March 2018	12:35:04	09/04/2018	19/04/2018	5	115	0.10	88.0	
867-511b	Tuesday, 20 March 2018	12:30:55	09/04/2018	19/04/2018	5	115	0.11	91.5	
858-2	Wednesday, 21 March 2018	12:24:59	09/04/2018	19/04/2018	5	115	0.10	108.0	
867-40	Friday, 23 March 2018	12:26:24	09/04/2018	19/04/2018	5	115	0.11	88.0	
858-5	Thursday, 29 March 2018	12:28:04	09/04/2018	19/04/2018	5	115	0.10	88.0	
867-41	Saturday, 31 March 2018	12:23:50	09/04/2018	19/04/2018	5	115	0.11	88.0	

Monitoring Point: BM02

Blast monitoring. Airblast overpressure and ground vibration peak particle velocity recorded to the south of ML1535 boundary

Blast Number	Day/Date	Time	Date Obtained	Date Published	Trigger Threshold		BM02 at Blast Time		Comments
					Ground Vibration (mm/s)	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)	Airblast Overpressure (dB(L))	
JANUARY									
876-30	Wednesday, 3 January 2018	12:25:51	05/02/2018	20/02/2018	5	115	0.12	88.0	
876-32	Thursday, 4 January 2018	15:07:17	05/02/2018	20/02/2018	5	115	0.10	85.8	
876-33	Monday, 8 January 2018	10:19:38	05/02/2018	20/02/2018	5	115	1.24	113.8	
876-34	Tuesday, 9 January 2018	12:27:08	05/02/2018	20/02/2018	5	115	0.10	103.5	
876-35	Wednesday, 10 January 2018	12:29:00	05/02/2018	20/02/2018	5	115	0.12	97.5	
876-40	Thursday, 11 January 2018	12:31:52	05/02/2018	20/02/2018	5	115	0.12	98.8	
876-29	Saturday, 13 January 2018	12:35:54	05/02/2018	20/02/2018	5	115	0.12	107.0	
867-2	Tuesday, 16 January 2018	15:18:29	05/02/2018	20/02/2018	5	115	0.15	91.5	
876-28	Tuesday, 16 January 2018	15:18:42	05/02/2018	20/02/2018	5	115	0.10	88.0	
867-12	Friday, 19 January 2018	12:30:10	05/02/2018	20/02/2018	5	115	0.14	88.0	
867-3	Monday, 23 January 2018	12:28:32	05/02/2018	20/02/2018	5	115	0.12	95.9	
867-513	Wednesday, 24 January 2018	12:56:24	05/02/2018	20/02/2018	5	115	0.12	97.5	
867-14	Thursday, 25 January 2018	12:30:28	05/02/2018	20/02/2018	5	115	0.13	95.9	
867-15	Sunday, 28 January 2018	12:29:39	05/02/2018	20/02/2018	1	95	0.11	88.0	
867-512	Tuesday, 30 January 2018	12:25:32	05/02/2018	20/02/2018	5	115	0.14	91.5	
867-16	Tuesday, 30 January 2018	12:25:32	05/02/2018	20/02/2018	5	115	0.14	91.5	
FEBRUARY									
867-509	Thursday, 1 February 2018	12:24:54	06/03/2018	20/03/2018	5	115	0.12	95.9	
867-17	Friday, 2 February 2018	12:31:37	06/03/2018	20/03/2018	5	115	0.15	88.0	
867-510a	Tuesday, 6 February 2018	12:35:33	06/03/2018	20/03/2018	5	115	0.10	94.0	
867-511a	Tuesday, 6 February 2018	12:35:33	06/03/2018	20/03/2018	5	115	0.10	94.0	
867-4	Tuesday, 6 February 2018	12:38:58	06/03/2018	20/03/2018	5	115	0.11	91.5	
867-27	Thursday, 8 February 2018	12:26:37	06/03/2018	20/03/2018	5	115	0.12	101.0	
867-516	Saturday, 10 February 2018	12:31:30	06/03/2018	20/03/2018	5	115	0.09	91.5	
867-6	Monday, 12 February 2018	12:26:56	06/03/2018	20/03/2018	5	115	0.11	94.0	
867-515	Monday, 12 February 2018	12:26:56	06/03/2018	20/03/2018	5	115	0.11	94.0	
867-18	Tuesday, 13 February 2018	12:31:42	06/03/2018	20/03/2018	5	115	0.10	94.0	
867-514	Tuesday, 13 February 2018	12:31:42	06/03/2018	20/03/2018	5	115	0.10	94.0	
867-7-13	Thursday, 15 February 2018	12:54:32	06/03/2018	20/03/2018	5	115	0.11	95.9	
867-26	Saturday, 17 February 2018	12:28:04	06/03/2018	20/03/2018	5	115	0.11	94.0	
867-25	Tuesday, 20 February 2018	12:36:18	06/03/2018	20/03/2018	1	115	0.14	97.5	
867-508	Tuesday, 20 February 2018	12:36:18	06/03/2018	20/03/2018	5	115	0.14	97.5	
867-10-11	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.13	88.8	
867-502	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.13	88.8	
867-503	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.13	88.8	
867-504	Friday, 23 February 2018	12:21:36	06/03/2018	20/03/2018	5	115	0.17	98.8	
867-28	Saturday, 24 February 2018	12:19:44	06/03/2018	20/03/2018	5	115	0.11	95.9	
867-24	Monday, 26 February 2018	12:31:13	06/03/2018	20/03/2018	5	115	0.12	105.5	
867-507	Monday, 26 February 2018	12:31:13	06/03/2018	20/03/2018	5	115	0.12	105.5	
867-501	Wednesday, 28 February 2018	12:29:42	06/03/2018	20/03/2018	5	115	0.10	101.9	
867-5	Wednesday, 28 February 2018	12:29:42	06/03/2018	20/03/2018	5	115	0.10	101.9	
MARCH									
867-23	Friday, 2 March 2018	12:30:28	09/04/2018	19/04/2018	5	115	0.11	91.5	
867-506	Friday, 2 March 2018	12:30:28	09/04/2018	19/04/2018	5	115	0.11	91.5	
867-505	Saturday, 3 March 2018	12:23:00	09/04/2018	19/04/2018	5	115	0.11	97.5	
867-9	Saturday, 3 March 2018	12:23:14	09/04/2018	19/04/2018	5	115	0.12	94.0	
867-19	Monday, 5 March 2018	12:21:18	09/04/2018	19/04/2018	5	115	0.11	94.0	
867-21	Wednesday, 7 March 2018	12:20:12	09/04/2018	19/04/2018	5	115	0.12	100.0	
867-8a	Thursday, 8 March 2018	12:39:11	09/04/2018	19/04/2018	5	115	0.12	97.5	
867-22	Friday, 9 March 2018	12:30:01	09/04/2018	19/04/2018	5	115	0.10	91.5	
867-20	Monday, 12 March 2018	12:33:16	09/04/2018	19/04/2018	5	115	0.12	95.9	
858-1	Tuesday, 13 March 2018	12:32:15	09/04/2018	19/04/2018	5	115	0.16	88.0	
867-39	Friday, 16 March 2018	12:35:04	09/04/2018	19/04/2018	5	115	0.10	88.0	
867-511b	Tuesday, 20 March 2018	12:30:55	09/04/2018	19/04/2018	5	115	0.12	88.0	
858-2	Wednesday, 21 March 2018	12:24:59	09/04/2018	19/04/2018	5	115	0.14	106.5	
867-40	Friday, 23 March 2018	12:26:24	09/04/2018	19/04/2018	5	115	0.12	95.9	
858-5	Thursday, 29 March 2018	12:28:04	09/04/2018	19/04/2018	5	115	0.12	88.0	
867-41	Saturday, 31 March 2018	12:23:50	09/04/2018	19/04/2018	5	115	0.10	88.0	

Monitoring Point: BM03

Blast monitoring, Airblast overpressure and ground vibration peak particle velocity recorded at private residence to the north of M11535 boundary

Blast Number	Day/Date	Time	Date Obtained	Date Published	Trigger Threshold		BM03 at Blast Time		Comments
					Ground Vibration (mm/s)	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)	Airblast Overpressure (dB(L))	
JANUARY									
876-30	Wednesday, 3 January 2018	12:25:51	05/02/2018	20/02/2018	5	115	0.12	88.0	
876-32	Thursday, 4 January 2018	15:07:17	05/02/2018	20/02/2018	5	115	0.13	91.5	
876-33	Monday, 8 January 2018	10:19:38	05/02/2018	20/02/2018	5	115	0.13	88.0	
876-34	Tuesday, 9 January 2018	12:27:08	05/02/2018	20/02/2018	5	115	0.13	91.5	
876-35	Wednesday, 10 January 2018	12:29:00	05/02/2018	20/02/2018	5	115	0.12	88.0	
876-40	Thursday, 11 January 2018	12:31:52	05/02/2018	20/02/2018	5	115	0.12	94.0	
876-29	Saturday, 13 January 2018	12:35:54	05/02/2018	20/02/2018	5	115	0.12	91.5	
867-2	Tuesday, 16 January 2018	15:13:29	05/02/2018	20/02/2018	5	115	0.15	91.5	
876-28	Tuesday, 16 January 2018	15:18:42	05/02/2018	20/02/2018	5	115	0.12	94.0	
867-12	Friday, 19 January 2018	12:30:10	05/02/2018	20/02/2018	5	115	0.17	91.5	
867-3	Monday, 22 January 2018	12:33:32	05/02/2018	20/02/2018	5	115	0.16	91.5	
867-513	Wednesday, 24 January 2018	12:56:24	05/02/2018	20/02/2018	5	115	0.13	95.9	
867-14	Thursday, 25 January 2018	12:30:28	05/02/2018	20/02/2018	5	115	0.12	88.0	
867-15	Sunday, 28 January 2018	12:29:30	05/02/2018	20/02/2018	1	95	0.14	91.5	
867-512	Tuesday, 30 January 2018	12:25:32	05/02/2018	20/02/2018	5	115	0.18	91.5	
867-16	Tuesday, 30 January 2018	12:25:32	05/02/2018	20/02/2018	5	115	0.18	91.5	
FEBRUARY									
867-509	Thursday, 1 February 2018	12:24:54	06/03/2018	20/03/2018	5	115	0.11	104.2	
867-17	Friday, 2 February 2018	12:31:37	06/03/2018	20/03/2018	5	115	0.17	91.5	
867-510a	Tuesday, 6 February 2018	12:35:33	06/03/2018	20/03/2018	5	115	0.14	91.5	
867-511a	Tuesday, 6 February 2018	12:35:33	06/03/2018	20/03/2018	5	115	0.14	91.5	
867-4	Tuesday, 6 February 2018	12:38:58	06/03/2018	20/03/2018	5	115	0.15	88.0	
867-27	Thursday, 8 February 2018	12:26:37	06/03/2018	20/03/2018	5	115	0.15	88.0	
867-516	Saturday, 10 February 2018	12:31:30	06/03/2018	20/03/2018	5	115	0.13	88.0	
867-6	Monday, 12 February 2018	12:26:56	06/03/2018	20/03/2018	5	115	0.13	101.9	
867-515	Monday, 12 February 2018	12:26:56	06/03/2018	20/03/2018	5	115	0.13	101.9	
867-18	Tuesday, 13 February 2018	12:31:42	06/03/2018	20/03/2018	5	115	0.14	91.5	
867-514	Tuesday, 13 February 2018	12:31:42	06/03/2018	20/03/2018	5	115	0.14	91.5	
867-7-13	Thursday, 15 February 2018	12:54:32	06/03/2018	20/03/2018	5	115	0.14	91.5	
867-26	Saturday, 17 February 2018	12:28:04	06/03/2018	20/03/2018	5	115	0.13	91.5	
867-25	Tuesday, 20 February 2018	12:36:18	06/03/2018	20/03/2018	1	115	0.12	102.8	
867-508	Tuesday, 20 February 2018	12:36:18	06/03/2018	20/03/2018	5	115	0.12	102.8	
867-10-11	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.14	91.5	
867-502	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.14	91.5	
867-503	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.14	91.5	
867-504	Friday, 23 February 2018	12:21:36	06/03/2018	20/03/2018	5	115	0.13	88.0	
867-28	Saturday, 24 February 2018	12:19:44	06/03/2018	20/03/2018	5	115	0.14	94.0	
867-24	Monday, 26 February 2018	12:31:13	06/03/2018	20/03/2018	5	115	0.12	102.8	
867-507	Monday, 26 February 2018	12:31:13	06/03/2018	20/03/2018	5	115	0.12	102.8	
867-501	Wednesday, 28 February 2018	12:29:42	06/03/2018	20/03/2018	5	115	0.13	91.5	
867-5	Wednesday, 28 February 2018	12:29:42	06/03/2018	20/03/2018	5	115	0.13	91.5	
MARCH									
867-23	Friday, 2 March 2018	12:30:28	09/04/2018	19/04/2018	5	115	0.13	91.5	
867-506	Friday, 2 March 2018	12:30:28	09/04/2018	19/04/2018	5	115	0.13	91.5	
867-505	Saturday, 3 March 2018	12:23:00	09/04/2018	19/04/2018	5	115	0.12	88.0	
867-9	Saturday, 3 March 2018	12:23:14	09/04/2018	19/04/2018	5	115	0.13	91.5	
867-19	Monday, 5 March 2018	12:21:18	09/04/2018	19/04/2018	5	115	0.13	88.0	
867-21	Wednesday, 7 March 2018	12:20:12	09/04/2018	19/04/2018	5	115	0.11	88.0	
867-8a	Thursday, 8 March 2018	12:39:11	09/04/2018	19/04/2018	5	115	0.13	88.0	
867-22	Friday, 9 March 2018	12:30:01	09/04/2018	19/04/2018	5	115	0.12	88.0	
867-20	Monday, 12 March 2018	12:33:16	09/04/2018	19/04/2018	5	115	0.16	91.5	
858-1	Tuesday, 13 March 2018	12:32:45	09/04/2018	19/04/2018	5	115	0.15	88.0	
867-39	Friday, 16 March 2018	12:35:04	09/04/2018	19/04/2018	5	115	0.12	88.0	
867-511b	Tuesday, 20 March 2018	12:30:55	09/04/2018	19/04/2018	5	115	0.12	100.0	
858-2	Wednesday, 21 March 2018	12:24:59	09/04/2018	19/04/2018	5	115	0.15	101.0	
867-40	Friday, 23 March 2018	12:26:24	09/04/2018	19/04/2018	5	115	0.12	91.5	
858-5	Thursday, 29 March 2018	12:28:04	09/04/2018	19/04/2018	5	115	0.13	91.5	
867-41	Saturday, 31 March 2018	12:23:50	09/04/2018	19/04/2018	5	115	0.13	88.0	

Monitoring Point: BM08.1 «Cowal North»

Blast monitoring, Airblast overpressure and ground vibration peak particle velocity recorded at private residence to the north, north east of ML1535 boundary

Blast Number	Day/Date	Time	Date Obtained	Date Published	Trigger Threshold		BM08.1 at Blast Time		Comments
					Ground Vibration (mm/s)	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)	Airblast Overpressure (dB(L))	
JANUARY									
876-30	Wednesday, 3 January 2018	12:25:51	05/02/2018	20/02/2018	5	115	0.02	91.5	
876-32	Thursday, 4 January 2018	15:07:17	05/02/2018	20/02/2018	5	115	0.03	91.5	
876-33	Monday, 8 January 2018	10:19:38	05/02/2018	20/02/2018	5	115	0.03	94.0	
876-34	Tuesday, 9 January 2018	12:27:08	05/02/2018	20/02/2018	5	115	0.03	97.5	
876-35	Wednesday, 10 January 2018	12:29:00	05/02/2018	20/02/2018	5	115	0.03	91.5	
876-40	Thursday, 11 January 2018	12:31:52	05/02/2018	20/02/2018	5	115	0.01	94.0	
876-29	Saturday, 13 January 2018	12:35:54	05/02/2018	20/02/2018	5	115	0.03	100.0	
867-2	Tuesday, 16 January 2018	15:13:29	05/02/2018	20/02/2018	5	115	0.07	91.5	
876-28	Tuesday, 16 January 2018	15:18:42	05/02/2018	20/02/2018	5	115	0.02	91.5	
867-12	Friday, 19 January 2018	12:30:10	05/02/2018	20/02/2018	5	115	0.07	91.5	
867-3	Monday, 22 January 2018	12:33:32	05/02/2018	20/02/2018	5	115	0.05	94.0	
867-513	Wednesday, 24 January 2018	12:56:24	05/02/2018	20/02/2018	5	115	0.07	101.0	
867-14	Thursday, 25 January 2018	12:30:28	05/02/2018	20/02/2018	5	115	0.03	88.0	
867-15	Sunday, 28 January 2018	12:29:30	05/02/2018	20/02/2018	1	95	0.03	91.5	
867-512	Tuesday, 30 January 2018	12:25:32	05/02/2018	20/02/2018	5	115	0.08	91.5	
867-16	Tuesday, 30 January 2018	12:25:32	05/02/2018	20/02/2018	5	115	0.08	91.5	
FEBRUARY									
867-509	Thursday, 1 February 2018	12:24:54	06/03/2018	20/03/2018	5	115	0.02	91.5	
867-17	Friday, 2 February 2018	12:31:37	06/03/2018	20/03/2018	5	115	0.07	88.0	
867-510a	Tuesday, 6 February 2018	12:35:33	06/03/2018	20/03/2018	5	115	0.01	88.0	
867-511a	Tuesday, 6 February 2018	12:35:33	06/03/2018	20/03/2018	5	115	0.01	88.0	
867-4	Tuesday, 6 February 2018	12:38:58	06/03/2018	20/03/2018	5	115	0.06	88.0	
867-7	Thursday, 8 February 2018	12:26:37	06/03/2018	20/03/2018	5	115	0.06	101.9	
867-516	Saturday, 10 February 2018	12:31:30	06/03/2018	20/03/2018	5	115	0.02	94.0	
867-6	Monday, 12 February 2018	12:26:56	06/03/2018	20/03/2018	5	115	0.05	98.8	
867-515	Monday, 12 February 2018	12:26:56	06/03/2018	20/03/2018	5	115	0.05	98.8	
867-18	Tuesday, 13 February 2018	12:31:42	06/03/2018	20/03/2018	5	115	0.06	95.9	
867-514	Tuesday, 13 February 2018	12:31:42	06/03/2018	20/03/2018	5	115	0.06	95.9	
867-7-13	Thursday, 15 February 2018	12:54:32	06/03/2018	20/03/2018	5	115	0.06	91.5	
867-26	Saturday, 17 February 2018	12:28:04	06/03/2018	20/03/2018	5	115	0.05	91.5	
867-25	Tuesday, 20 February 2018	12:36:18	06/03/2018	20/03/2018	1	115	0.05	94.0	
867-508	Tuesday, 20 February 2018	12:36:18	06/03/2018	20/03/2018	5	115	0.05	94.0	
867-10-11	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.03	94.0	
867-502	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.03	94.0	
867-503	Thursday, 22 February 2018	12:34:02	06/03/2018	20/03/2018	5	115	0.03	94.0	
867-504	Friday, 23 February 2018	12:21:36	06/03/2018	20/03/2018	5	115	0.03	94.0	
867-29	Saturday, 24 February 2018	12:19:44	06/03/2018	20/03/2018	5	115	0.04	100.0	
867-24	Monday, 26 February 2018	12:31:13	06/03/2018	20/03/2018	5	115	0.04	97.5	
867-507	Monday, 26 February 2018	12:31:13	06/03/2018	20/03/2018	5	115	0.04	97.5	
867-501	Wednesday, 28 February 2018	12:29:42	06/03/2018	20/03/2018	5	115	0.04	105.5	
867-5	Wednesday, 28 February 2018	12:29:42	06/03/2018	20/03/2018	5	115	0.04	105.5	
MARCH									
867-23	Friday, 2 March 2018	12:30:28	09/04/2018	19/04/2018	5	115	0.02	88.0	
867-506	Friday, 2 March 2018	12:30:28	09/04/2018	19/04/2018	5	115	0.03	88.0	
867-505	Saturday, 3 March 2018	12:23:00	09/04/2018	19/04/2018	5	115	0.01	88.0	
867-9	Saturday, 3 March 2018	12:23:14	09/04/2018	19/04/2018	5	115	0.05	88.0	
867-19	Monday, 5 March 2018	12:21:18	09/04/2018	19/04/2018	5	115	0.03	94.0	
867-21	Wednesday, 7 March 2018	12:20:12	09/04/2018	19/04/2018	5	115	0.02	91.5	
867-8a	Thursday, 8 March 2018	12:39:11	09/04/2018	19/04/2018	5	115	0.04	94.0	
867-22	Friday, 9 March 2018	12:30:01	09/04/2018	19/04/2018	5	115	0.02	94.0	
867-20	Monday, 12 March 2018	12:33:16	09/04/2018	19/04/2018	5	115	0.03	91.5	
858-1	Tuesday, 13 March 2018	12:32:15	09/04/2018	19/04/2018	5	115	0.09	94.0	
867-39	Friday, 16 March 2018	12:35:04	09/04/2018	19/04/2018	5	115	0.03	94.0	
867-511b	Tuesday, 20 March 2018	12:30:55	09/04/2018	19/04/2018	5	115	0.02	95.9	
858-2	Wednesday, 21 March 2018	12:24:59	09/04/2018	19/04/2018	5	115	0.07	101.9	
867-40	Friday, 23 March 2018	12:26:24	09/04/2018	19/04/2018	5	115	0.03	95.9	
858-5	Thursday, 29 March 2018	12:28:04	09/04/2018	19/04/2018	5	115	0.04	94.0	
867-41	Saturday, 31 March 2018	12:23:50	09/04/2018	19/04/2018	5	115	0.03	94.0	

Compliance Summary – Overpressure level from blasting operations must not exceeded more than 5% of the total number of blasts over a period of 12 months	Total Number of blasts	224	Percentage of exceedances over 12 month period	0%
--	------------------------	-----	--	----



Cyanide

Monitoring Point: 48
Water quality monitoring, automated sampler located at the processing plant

Frequency	Month	No Sampled during Month	Total Cyanide (mg/L)				Comments
			Minimum	Mean	Median	Maximum	
Weekly	January	5	15.1	45.7	49.9	63.7	
Weekly	February	4	12.8	31.4	32.9	46.9	
Weekly	March	4	24.1	33.2	31.7	45.3	
Weekly	April						
Weekly	May						
Weekly	June						
Weekly	July						
Weekly	August						
Weekly	September						
Weekly	October						
Weekly	November						
Weekly	December						

Frequency	Month	No Sampled during Month	WAD Cyanide (mg/L)		Concentration Limits		Comments
			Minimum	Maximum	90th Percentile	100th Percentile	
Twice daily	January	62	1.2	13.8	20ppm	30ppm	
Twice daily	February	56	1.1	10.6	20ppm	30ppm	
Twice daily	March	49	0.3	14.0	20ppm	30ppm	Samples were not collected due to mill shutdown between: 03/03/17 (Evening) and the 07/03/17 (Evening)
Twice daily	April				20ppm	30ppm	
Twice daily	May				20ppm	30ppm	
Twice daily	June				20ppm	30ppm	
Twice daily	July				20ppm	30ppm	
Twice daily	August				20ppm	30ppm	
Twice daily	September				20ppm	30ppm	
Twice daily	October				20ppm	30ppm	
Twice daily	November				20ppm	30ppm	
Twice daily	December				20ppm	30ppm	



EPL Exceedances

