



**Evolution**  
MINING

# Environmental Monitoring Data

December 2020

EPL No: 11912

Licensee: Evolution Mining (Cowal) 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 Out)	Date Obtained	Date Published	Particulates (g/m <sup>3</sup> /mth)	Comments
Monthly	31/12/2019	30/01/2020	20/02/2020	8.6	Water, insects, dust
Monthly	20/01/2020	16/03/2020	20/03/2020	4.8	
Monthly	27/02/2020	17/04/2020	20/04/2020	1.7	
Monthly	30/03/2020	14/05/2020	20/05/2020	1.9	
Monthly	28/04/2020	15/06/2020	20/06/2020	1.9	
Monthly	27/05/2020	16/07/2020	20/07/2020	5.3	
Monthly	25/06/2020	13/08/2020	20/08/2020	3.4	
Monthly	27/07/2020	18/09/2020	20/09/2020	2.6	
Monthly	26/08/2020	15/10/2020	20/10/2020	3.0	
Monthly	25/09/2020	12/11/2020	20/11/2020	9.1	Water (brown) insects, droppings
Monthly	27/10/2020	17/12/2020	20/12/2020	2.4	
Monthly	27/11/2020	21/01/2020	20/02/2020	3.2	
Number of Samples Collected				12	
Lowest Value				1.7	
Mean of Sample				4.0	
Highest Sample Value				9.1	
Median				3.1	

### Monitoring Point: 2 <Site Office>

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

Frequency	Date Sampled (Date Out)	Date Obtained	Date Published	Particulates (g/m <sup>3</sup> /mth)	Comments
Monthly	31/12/2019	30/01/2020	20/02/2020	4.5	
Monthly	20/01/2020	16/03/2020	20/03/2020	6.1	Water, dust, insects
Monthly	27/02/2020	17/04/2020	20/04/2020	5.9	
Monthly	30/03/2020	14/05/2020	20/05/2020	8.0	Water, bird droppings, bugs, moth
Monthly	28/04/2020	15/06/2020	20/06/2020	8.6	
Monthly	27/05/2020	16/07/2020	20/07/2020	2.0	
Monthly	25/06/2020	13/08/2020	20/08/2020	1.6	
Monthly	27/07/2020	18/09/2020	20/09/2020	6.8	Water, bird droppings, insects
Monthly	26/08/2020	15/10/2020	20/10/2020	19.6	Water, very dark and alot of bird droppings
Monthly	25/09/2020	12/11/2020	20/11/2020	9.0	Water (very dark) insects
Monthly	27/10/2020	17/12/2020	20/12/2020	2.9	
Monthly	27/11/2020	21/01/2020	20/02/2020	1.4	
Number of Samples Collected				12	
Lowest Value				1.4	
Mean of Sample				6.4	
Highest Sample Value				19.6	
Median				6.0	

### Monitoring Point: 3 <DG06>

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

Frequency	Date Sampled (Date Out)	Date Obtained	Date Published	Particulates (g/m <sup>3</sup> /mth)	Comments
Monthly	31/12/2019	30/01/2020	20/02/2020	3.7	
Monthly	20/01/2020	16/03/2020	20/03/2020	6.8	Water, dust, insects
Monthly	27/02/2020	17/04/2020	20/04/2020	1.5	
Monthly	30/03/2020	14/05/2020	20/05/2020	11.7	
Monthly	28/04/2020	15/06/2020	20/06/2020	7.7	
Monthly	27/05/2020	16/07/2020	20/07/2020	6.2	
Monthly	25/06/2020	13/08/2020	20/08/2020	14.7	Water, Insects
Monthly	27/07/2020	18/09/2020	20/09/2020	10.9	Water, droppings, insects
Monthly	26/08/2020	15/10/2020	20/10/2020	3.9	
Monthly	25/09/2020	12/11/2020	20/11/2020	12.4	Water (dark) insects, droppings
Monthly	27/10/2020	17/12/2020	20/12/2020	2.5	
Monthly	27/11/2020	21/01/2020	20/02/2020	2.8	
Number of Samples Collected				12	
Lowest Value				1.5	
Mean of Sample				7.1	
Highest Sample Value				14.7	
Median				6.5	

### Monitoring Point: 4 <DG09>

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

Frequency	Date Sampled (Date Out)	Date Obtained	Date Published	Particulates (g/m <sup>3</sup> /mth)	Comments
Monthly	31/12/2019	30/01/2020	20/02/2020	4.4	
Monthly	20/01/2020	16/03/2020	20/03/2020	10.3	Water, dust, insects
Monthly	27/02/2020	17/04/2020	20/04/2020	1.3	
Monthly	30/03/2020	14/05/2020	20/05/2020	6.5	
Monthly	28/04/2020	15/06/2020	20/06/2020	2.8	
Monthly	27/05/2020	16/07/2020	20/07/2020	1.0	
Monthly	25/06/2020	13/08/2020	20/08/2020	4.3	
Monthly	27/07/2020	18/09/2020	20/09/2020	5.9	Water, droppings, insects
Monthly	26/08/2020	15/10/2020	20/10/2020	7.7	
Monthly	25/09/2020	12/11/2020	20/11/2020	16.4	Water, insects, algae, debris
Monthly	27/10/2020	17/12/2020	20/12/2020	3.8	
Monthly	27/11/2020	21/01/2020	20/02/2020	1.6	
Number of Samples Collected				12	
Lowest Value				1.0	
Mean of Sample				5.5	
Highest Sample Value				16.4	
Median				4.4	

### Monitoring Point: 5 <Site 52>

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

Frequency	Date Sampled (Date Out)	Date Obtained	Date Published	Particulates (g/m <sup>3</sup> /mth)	Comments
Monthly	31/12/2019	30/01/2020	20/02/2020	6.9	Water, insects, dust
Monthly	20/01/2020	16/03/2020	20/03/2020	11.5	Water, dust, algae
Monthly	27/02/2020	17/04/2020	20/04/2020	2.8	
Monthly	30/03/2020	14/05/2020	20/05/2020	3.3	
Monthly	28/04/2020	15/06/2020	20/06/2020	3.2	
Monthly	27/05/2020	16/07/2020	20/07/2020	4.0	
Monthly	25/06/2020	13/08/2020	20/08/2020	4.0	
Monthly	27/07/2020	18/09/2020	20/09/2020	2.3	
Monthly	26/08/2020	15/10/2020	20/10/2020	3.2	
Monthly	25/09/2020	12/11/2020	20/11/2020	4.5	Water, insects, algae, debris
Monthly	27/10/2020	17/12/2020	20/12/2020	3.2	
Monthly	27/11/2020	21/01/2020	20/02/2020	3.4	
Number of Samples Collected				12	
Lowest Value				2.3	
Mean of Sample				4.3	
Highest Sample Value				11.5	
Median				3.3	



## Dust

### Monitoring Point: 6 <D601>

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

Frequency	Date Sampled (Date Out)	Date Obtained	Date Published	Particulates (g/m <sup>3</sup> /mth)	Comments
Monthly	31/12/2019	30/01/2020	20/02/2020	4.8	
Monthly	20/01/2020	16/03/2020	20/03/2020	5.6	Water, dust, bug
Monthly	27/02/2020	17/04/2020	20/04/2020	2.3	
Monthly	30/03/2020	14/05/2020	20/05/2020	1.3	
Monthly	28/04/2020	15/06/2020	20/06/2020	0.6	
Monthly	27/05/2020	16/07/2020	20/07/2020	0.8	
Monthly	25/06/2020	13/08/2020	20/08/2020	0.0	
Monthly	27/07/2020	18/09/2020	20/09/2020	0.9	
Monthly	26/08/2020	15/10/2020	20/10/2020	2.0	
Monthly	25/09/2020	12/11/2020	20/11/2020	0.8	
Monthly	27/10/2020	17/12/2020	20/12/2020	1.8	
Monthly	27/11/2020	21/01/2020	20/02/2020	2.3	
Number of Samples Collected				12	
Lowest Value				0.0	
Mean of Sample				1.9	
Highest Sample Value				5.6	
Median				1.5	

### Monitoring Point: 49 <HV1>

Dust monitoring, High volume sampler located on private property to the north of ML1535 boundary

Frequency	Date Sampled	Date Obtained	Date Published	Total Suspended Particles (µg/m <sup>3</sup> )	Comments
Every 7 days	Wednesday, 3 January 2020	29/01/2020	20/02/2020	262	Heavy smoke over region due to fires on east coast
Every 7 days	Wednesday, 8 January 2020	29/01/2020	20/02/2020	209	Smoke over region due to fires on east coast
Every 7 days	Wednesday, 15 January 2020	29/01/2020	20/02/2020	101	
Every 7 days	Wednesday, 22 January 2020	29/01/2020	20/02/2020	105	
Every 7 days	Wednesday, 29 January 2020	14/02/2020	20/03/2020	70.6	
Every 7 days	Saturday, 8 February 2020	04/03/2020	20/03/2020	77.6	Unit did not run on the 5th, ran on 8th
Every 7 days	Wednesday, 12 February 2020	04/03/2020	20/03/2020	29.7	
Every 7 days	Wednesday, 19 February 2020	17/03/2020	20/03/2020	85.4	
Every 7 days	Wednesday, 26 February 2020	17/03/2020	20/03/2020	112	
Every 7 days	Wednesday, 4 March 2020	07/04/2020	20/04/2020	15.6	
Every 7 days	Thursday, 12 March 2020	07/04/2020	20/04/2020	30.3	Unit did not run on the 11th ran the 12th
Every 7 days	Wednesday, 18 March 2020	07/04/2020	20/04/2020	52.0	
Every 7 days	Wednesday, 25 March 2020	24/04/2020	20/05/2020	49.1	
Every 7 days	Wednesday, 1 April 2020	24/04/2020	20/05/2020	29.1	
Every 7 days	Wednesday, 8 April 2020	05/05/2020	20/05/2020	25.3	
Every 7 days	Wednesday, 15 April 2020	05/05/2020	20/05/2020	30.8	
Every 7 days	Wednesday, 22 April 2020	15/05/2020	20/05/2020	45.0	
Every 7 days	Wednesday, 29 April 2020	15/05/2020	20/05/2020	14.4	
Every 7 days	Wednesday, 6 May 2020	28/05/2020	20/06/2020	11.7	
Every 7 days	Wednesday, 13 May 2020	28/05/2020	20/06/2020	45.5	
Every 7 days	Wednesday, 20 May 2020	12/06/2020	20/06/2020	18.3	
Every 7 days	Wednesday, 27 May 2020	12/06/2020	20/06/2020	13.8	
Every 7 days	Wednesday, 3 June 2020	03/07/2020	20/07/2020	7.8	
Every 7 days	Wednesday, 10 June 2020	03/07/2020	20/07/2020	19.4	
Every 7 days	Wednesday, 17 June 2020	03/07/2020	20/07/2020	17	
Every 7 days	Wednesday, 24 June 2020	06/08/2020	20/08/2020	1.5	
Every 7 days	Wednesday, 1 July 2020	06/08/2020	20/08/2020	4.5	
Every 7 days	Wednesday, 8 July 2020	06/08/2020	20/08/2020	15.8	
Every 7 days	Wednesday, 15 July 2020	06/08/2020	20/08/2020	7.5	
Every 7 days	Wednesday, 22 July 2020	06/08/2020	20/08/2020	13.2	
Every 7 days	Wednesday, 29 July 2020	28/08/2020	18/09/2020	3.3	
Every 7 days	Wednesday, 5 August 2020	17/09/2020	20/02/2021	8.9	
Every 7 days	Wednesday, 12 August 2020	17/09/2020	20/02/2021	4.2	
Every 7 days	Wednesday, 19 August 2020	17/09/2020	20/02/2021	-	Power Trip
Every 7 days	Wednesday, 26 August 2020	17/09/2020	20/02/2021	18.4	
Every 7 days	Wednesday, 2 September 2020	14/10/2020	20/10/2020	13.7	
Every 7 days	Wednesday, 9 September 2020	14/10/2020	20/10/2020	19.1	
Every 7 days	Wednesday, 16 September 2020	14/10/2020	20/10/2020	52.7	
Every 7 days	Wednesday, 23 September 2020	14/10/2020	20/10/2020	14.6	
Every 7 days	Wednesday, 30 September 2020	13/11/2020	20/11/2020	28.6	
Every 7 days	Wednesday, 7 October 2020	13/11/2020	20/11/2020	31.2	
Every 7 days	Wednesday, 14 October 2020	13/11/2020	20/11/2020	58.8	
Every 7 days	Wednesday, 21 October 2020	13/11/2020	20/11/2020	37	
Every 7 days	Wednesday, 28 October 2020	13/11/2020	20/11/2020	19.8	
Every 7 days	Wednesday, 4 November 2020	10/10/2020	18/12/2020	62.7	
Every 7 days	Wednesday, 11 November 2020	10/10/2020	18/12/2020	55.2	
Every 7 days	Wednesday, 18 November 2020	10/10/2020	18/12/2020	84.6	
Every 7 days	Wednesday, 25 November 2020	10/10/2020	18/12/2020	34.5	
Every 7 days	Wednesday, 2 December 2020	07/01/2021	20/01/2021	89.0	
Every 7 days	Wednesday, 9 December 2020	07/01/2021	20/01/2021	55.2	
Every 7 days	Wednesday, 16 December 2020	03/02/2021	20/02/2021	20.6	
Every 7 days	Wednesday, 23 December 2020	03/02/2021	20/02/2021	25.4	
Every 7 days	Wednesday, 30 December 2020	03/02/2021	20/02/2021	29.5	
Number of Samples Collected				52	
Lowest Value				1.5	
Mean of Sample				44.0	
Highest Sample Value				262.0	
Median				29.3	



## 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	07/01/2020	-	-	-	-	-	Dry
Monthly	10/02/2020	-	-	-	-	-	Dry
Monthly	05/03/2020	13/04/2020	20/04/2020	7.4	6225	67	
Monthly	04/04/2020	04/04/2020	20/05/2020	5.0	7043	106	Event Monitoring, Lab pH 7.33
Monthly	10/04/2020	10/04/2020	20/05/2020	6.6	4094	21	Event Monitoring
Monthly	30/04/2020	30/04/2020	20/05/2020	5.0	7048	1150	Event Monitoring
Monthly	12/05/2020	21/05/2020	20/06/2020	6.1	6648	177	
Monthly	03/06/2020	03/06/2020	20/07/2020	7.8	7761	5	
Monthly	08/07/2020	08/07/2020	20/08/2020	5.8	6646	20	
Monthly	13/07/2020	13/07/2020	20/08/2020	6.9	6155	<1	Event Monitoring
Monthly	08/08/2020	08/08/2020	20/09/2020	6.9	4265	40	
Monthly	02/09/2020	11/09/2020	20/10/2020	8.2	7510	130	
Monthly	07/10/2020	16/10/2020	20/11/2020	8.5	9361	4	
Monthly	25/10/2020	05/11/2020	20/11/2020	5.4	9091	26	Event Monitoring
Monthly	10/11/2020	10/11/2020	18/12/2020	9.0	10219	14	
Monthly	09/12/2020	15/12/2020	20/01/2021	8.5	631	52	
Number of Samples Collected				13	13	12	
Lowest Value				5.0	4094	4	
Mean of Sample				7.0	7082	147	
Highest Sample Value				9.0	10219	1150	
Median				6.9	7043	33	

### 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	07/01/2020	-	-	-	-	-	Dry
Monthly	10/02/2020	-	-	-	-	-	Dry
Monthly	05/03/2020	13/04/2020	20/04/2020	7.8	266	3290	
Monthly	04/04/2020	04/04/2020	20/05/2020	4.7	807	68	Event Monitoring, Lab pH 7.25
Monthly	10/04/2020	10/04/2020	20/05/2020	6.2	1212	91	Event Monitoring
Monthly	30/04/2020	30/04/2020	20/05/2020	5.3	713	66	Event Monitoring
Monthly	12/05/2020	21/05/2020	20/06/2020	8.3	538	21	
Monthly	03/06/2020	03/06/2020	20/07/2020	8.2	581	148	
Monthly	08/07/2020	08/07/2020	20/08/2020	5.5	664	32	
Monthly	13/07/2020	13/07/2020	20/08/2020	7.5	1522	28	Event Monitoring
Monthly	08/08/2020	08/08/2020	20/09/2020	7.3	551	39	
Monthly	02/09/2020	11/09/2020	20/10/2020	8.7	577	21	
Monthly	07/10/2020	16/10/2020	20/11/2020	8.6	1755	42	
Monthly	25/10/2020	05/11/2020	20/11/2020	5.5	909	265	Event Monitoring
Monthly	10/11/2020	10/11/2020	18/12/2020	8.4	2444	50	
Monthly	09/12/2020	15/12/2020	20/01/2021	8.6	901	91	
Number of Samples Collected				13	13	13	
Lowest Value				4.7	266	21	
Mean of Sample				7.1	965	320	
Highest Sample Value				8.7	2444	3290	
Median				7.5	713	50	





Groundwater

Monitoring Point 19 - WPGA-19  
Groundwater quality monitoring. Parameter located up gradient of southern battery storage facility.

Table with 6 columns: Frequency, Date Sampled, Date Observed, Date Published, Total pH (unit), Field - Electrical Conductivity (µS/cm), and Comments. Contains 15 rows of data for monitoring point 19.

Table with 23 columns: Frequency, Date Sampled, Date Observed, pH (unit), Arsenic (mg/L), Ammonia (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Nitrate (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), and Zinc (mg/L). Contains 4 rows of data for monitoring point 19.

Monitoring Point 20 - WPGA-20  
Groundwater quality monitoring. Parameter located near the processing plant area.

Table with 6 columns: Frequency, Date Sampled, Date Observed, Date Published, Total pH (unit), Field - Electrical Conductivity (µS/cm), and Comments. Contains 15 rows of data for monitoring point 20.

Table with 23 columns: Frequency, Date Sampled, Date Observed, pH (unit), Arsenic (mg/L), Ammonia (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Nitrate (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), and Zinc (mg/L). Contains 4 rows of data for monitoring point 20.

Monitoring Point 27 - WPGA-27  
Groundwater quality monitoring. Parameter located near the processing plant area.

Table with 6 columns: Frequency, Date Sampled, Date Observed, Date Published, Total pH (unit), Field - Electrical Conductivity (µS/cm), and Comments. Contains 15 rows of data for monitoring point 27.

Table with 23 columns: Frequency, Date Sampled, Date Observed, pH (unit), Arsenic (mg/L), Ammonia (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Nitrate (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), and Zinc (mg/L). Contains 4 rows of data for monitoring point 27.

Monitoring Point 30 - WPGA-30  
Groundwater quality monitoring. Parameter located down gradient of southern battery storage facility.

Table with 6 columns: Frequency, Date Sampled, Date Observed, Date Published, Total pH (unit), Field - Electrical Conductivity (µS/cm), and Comments. Contains 15 rows of data for monitoring point 30.

Table with 23 columns: Frequency, Date Sampled, Date Observed, pH (unit), Arsenic (mg/L), Ammonia (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Nitrate (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), and Zinc (mg/L). Contains 4 rows of data for monitoring point 30.









Groundwater

Monitoring Point 12 - v08020 - Groundwater quality monitoring, P4 monitoring bore

Table with columns: Frequency, Date Sampled, Date Observed, Date Published, Total pH (unit), Field Electrical Conductivity (µS/cm), SML (m), Comments. Contains 14 rows of data.

Table with columns: Frequency, Date Sampled, Date Observed, Date Published, Arsenic (mg/L), Cadmium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (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. Contains 4 rows of data.

Monitoring Point 14 - v08020 - Groundwater quality monitoring, P4 monitoring bore

Table with columns: Frequency, Date Sampled, Date Observed, Date Published, Total pH (unit), Field Electrical Conductivity (µS/cm), SML (m), Comments. Contains 14 rows of data.

Table with columns: Frequency, Date Sampled, Date Observed, Date Published, Arsenic (mg/L), Cadmium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (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. Contains 4 rows of data.

Monitoring Point 17 - v08020 - Groundwater quality monitoring, Groundwater monitoring bore located to the south of the sodium sulfate storage facility

Table with columns: Frequency, Date Sampled, Date Observed, Date Published, Total pH (unit), Field Electrical Conductivity (µS/cm), SML (m), Comments. Contains 14 rows of data.

Table with columns: Frequency, Date Sampled, Date Observed, Date Published, Arsenic (mg/L), Cadmium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (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. Contains 4 rows of data.

Monitoring Point 18 - v08020 - Groundwater quality monitoring, Groundwater monitoring bore located to the south of the sodium sulfate storage facility

Table with columns: Frequency, Date Sampled, Date Observed, Date Published, Total pH (unit), Field Electrical Conductivity (µS/cm), SML (m), Comments. Contains 14 rows of data.

Table with columns: Frequency, Date Sampled, Date Observed, Date Published, Arsenic (mg/L), Cadmium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (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. Contains 4 rows of data.



Groundwater

Monitoring Point: 02 - 0880202

Table with 7 columns: Frequency, Date Sampled, Date Observed, Date Published, Field pH (pH), Field Resistivity (Conductivity (µS/cm)), and SWS (m). Includes summary rows for Average, Minimum, Maximum, and Standard Deviation.

Table with 23 columns: Frequency, Date Sampled, Date Observed, Alkalinity (mg/L), Arsenic (mg/L), Barium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (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), Sulfate (mg/L), Total Dissolved Solids (mg/L), Total Hardness (mg/L), and Zinc (mg/L). Includes summary rows for Average, Minimum, Maximum, and Standard Deviation.

Monitoring Point: 02 - 0880202

Table with 7 columns: Frequency, Date Sampled, Date Observed, Date Published, Field pH (pH), Field Resistivity (Conductivity (µS/cm)), and SWS (m). Includes summary rows for Average, Minimum, Maximum, and Standard Deviation.

Table with 23 columns: Frequency, Date Sampled, Date Observed, Alkalinity (mg/L), Arsenic (mg/L), Barium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (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), Sulfate (mg/L), Total Dissolved Solids (mg/L), Total Hardness (mg/L), and Zinc (mg/L). Includes summary rows for Average, Minimum, Maximum, and Standard Deviation.

Monitoring Point: 02 - 0880202

Table with 7 columns: Frequency, Date Sampled, Date Observed, Date Published, Field pH (pH), Field Resistivity (Conductivity (µS/cm)), and SWS (m). Includes summary rows for Average, Minimum, Maximum, and Standard Deviation.

Table with 23 columns: Frequency, Date Sampled, Date Observed, Alkalinity (mg/L), Arsenic (mg/L), Barium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (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), Sulfate (mg/L), Total Dissolved Solids (mg/L), Total Hardness (mg/L), and Zinc (mg/L). Includes summary rows for Average, Minimum, Maximum, and Standard Deviation.



Groundwater

Monitoring Point 02 - 080820 - Groundwater quality monitoring. Groundwater monitoring bore located to the south of the southern tailings storage facility.

Table with 7 columns: Frequency, Date Sampled, Date Observed, Date Published, Field pH (unit), Field Electrical Conductivity (µS/cm), and Comments. Contains 12 rows of data for monitoring point 02.

Table with 20 columns: Frequency, Date Sampled, Date Observed, Date Published, Alkalinity (mg/L), Arsenic (mg/L), Barium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Nitrate (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), and Comments. Contains 4 rows of data for monitoring point 02.

Monitoring Point 03 - 080820 - Groundwater quality monitoring. Groundwater monitoring bore located to the south of the southern tailings storage facility.

Table with 7 columns: Frequency, Date Sampled, Date Observed, Date Published, Field pH (unit), Field Electrical Conductivity (µS/cm), and Comments. Contains 12 rows of data for monitoring point 03.

Table with 20 columns: Frequency, Date Sampled, Date Observed, Date Published, Alkalinity (mg/L), Arsenic (mg/L), Barium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Nitrate (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), and Comments. Contains 4 rows of data for monitoring point 03.

Monitoring Point 04 - 080820 - Groundwater quality monitoring. Groundwater monitoring bore located to the south of the southern tailings storage facility.

Table with 7 columns: Frequency, Date Sampled, Date Observed, Date Published, Field pH (unit), Field Electrical Conductivity (µS/cm), and Comments. Contains 12 rows of data for monitoring point 04.

Table with 20 columns: Frequency, Date Sampled, Date Observed, Date Published, Alkalinity (mg/L), Arsenic (mg/L), Barium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Nitrate (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), and Comments. Contains 4 rows of data for monitoring point 04.

Monitoring Point 05 - 080820 - Groundwater quality monitoring. Groundwater monitoring bore located to the south of the southern tailings storage facility.

Table with 7 columns: Frequency, Date Sampled, Date Observed, Date Published, Field pH (unit), Field Electrical Conductivity (µS/cm), and Comments. Contains 12 rows of data for monitoring point 05.

Table with 20 columns: Frequency, Date Sampled, Date Observed, Date Published, Alkalinity (mg/L), Arsenic (mg/L), Barium (mg/L), Calcium (mg/L), Chloride (mg/L), Copper (mg/L), Cyanide (mg/L), Iron (mg/L), Lead (mg/L), Magnesium (mg/L), Manganese (mg/L), Nitrate (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), and Comments. Contains 4 rows of data for monitoring point 05.





# Waste Rock Leachate

## Monitoring Point: 41 <Northern Waste Emplacement>

Northern Waste Emplacement leachate quality monitoring

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	Comments
Monthly	15/01/2020	15/01/2020	20/02/2020	-	-	No water present in toe drain
Monthly	05/02/2020	05/02/2020	20/03/2020	-	-	No water present in toe drain
Monthly	11/03/2020	11/03/2020	20/04/2020	-	-	No water present in toe drain
Monthly	15/04/2020	15/04/2020	20/05/2020	-	-	No water present in toe drain
Monthly	12/05/2020	12/05/2020	20/06/2020	-	-	No water present in toe drain
Monthly	03/06/2020	03/06/2020	20/07/2020	-	-	No water present in toe drain
Monthly	08/07/2020	08/07/2020	20/08/2020	-	-	No water present in toe drain
Monthly	18/08/2020	18/08/2020	20/09/2020	-	-	No water present in toe drain
Monthly	02/09/2020	02/09/2020	20/10/2020	-	-	No water present in toe drain
Monthly	14/10/2020	14/10/2020	20/11/2020	-	-	No water present in toe drain
Monthly	12/11/2020	12/11/2020	18/11/2020	-	-	No water present in toe drain
Monthly	09/12/2020	09/12/2020	20/01/2021	-	-	No water present in toe drain
Number of Samples Collected				0	0	
Lowest Value				0.0	0	
Mean of Sample				0.0	0	
Highest Sample Value				0.0	0	
Median				0.0	0	

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)	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)	Sulfate (mg/L)	Total Hardness (mg/L)	Total Dissolved Solids (mg/L)	Total Suspended Solids (mg/L)	Zinc (mg/L)	Comments	
Quarterly	15/01/2020	15/01/2020	20/02/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No water present in toe drain
Quarterly	15/04/2020	15/04/2020	20/05/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No water present in toe drain
Quarterly	08/07/2020	08/07/2020	20/08/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No water present in toe drain
Quarterly	14/10/2020	14/10/2020	20/11/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No water present in toe drain

## Monitoring Point: 42 <Southern Waste Emplacement>

Southern Waste Emplacement leachate quality monitoring

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	Comments
Monthly	15/01/2020	15/01/2020	20/02/2020	7.98	23508	
Monthly	05/02/2020	05/02/2020	20/03/2020	7.96	14244	
Monthly	11/03/2020	11/03/2020	20/04/2020	7.29	19552	
Monthly	15/04/2020	15/04/2020	20/05/2020	5.7	19659	Lab pH 7.76
Monthly	12/05/2020	12/05/2020	20/06/2020	7.6	17651	
Monthly	03/06/2020	03/06/2020	20/07/2020	8.0	19258	
Monthly	08/07/2020	08/07/2020	20/08/2020	5.63	12552	
Monthly	18/08/2020	18/08/2020	20/09/2020	7.19	12533	
Monthly	02/09/2020	02/09/2020	20/10/2020	7.91	13418	
Monthly	14/10/2020	14/10/2020	20/11/2020	5.97	15459	
Monthly	12/11/2020	12/11/2020	18/11/2020	8.79	12062	
Monthly	09/12/2020	09/12/2020	20/01/2021	7.91	15530	
Number of Samples Collected				11	11	
Lowest Value				5.6	12062	
Mean of Sample				7.3	16186	
Highest Sample Value				8.8	23508	
Median				7.8	15495	

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)	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)	Sulfate (mg/L)	Total Hardness (mg/L)	Total Dissolved Solids (mg/L)	Total Suspended Solids (mg/L)	Zinc (mg/L)	Comments	
Quarterly	15/01/2020	15/01/2020	20/02/2020	203	<0.0005	0.0007	0.0049	841	6560	0.002	0.011	<0.0002	767	0.167	0.0038	<0.0005	44	<0.002	3500	3250	5260	18300	0	0.021	-	
Quarterly	15/04/2020	15/04/2020	20/05/2020	279	0.0006	0.001	0.0088	832	6960	0.0012	<0.002	<0.00010	719	2.240	0.0048	0.0013	42	0.0005	3290	2860	5040	18300	17	0.128	-	
Quarterly	08/07/2020	08/07/2020	20/08/2020	269	0.0002	0.0005	0.0055	611	5250	0.0011	0.008	<0.00010	641	0.339	0.0025	0.0008	72	0.0018	2790	2890	4160	12800	758	0.104	-	
Quarterly	14/10/2020	14/10/2020	20/11/2020	276	0.0003	0.0006	0.00396	636	4540	0.001	0.005	<0.00010	527	0.188	0.0033	0.0008	32	0.0018	2470	2760	3760	12200	134	0.089	-	

## Monitoring Point: 43 <Perimeter Waste Emplacement>

Perimeter Waste Emplacement leachate quality monitoring

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	Comments
Monthly	15/01/2020	15/01/2020	20/02/2020	-	-	No water present in toe drain
Monthly	05/02/2020	05/02/2020	20/03/2020	-	-	No water present in toe drain
Monthly	11/03/2020	11/03/2020	20/04/2020	-	-	No water present in toe drain
Monthly	15/04/2020	15/04/2020	20/05/2020	-	-	No water present in toe drain
Monthly	12/05/2020	12/05/2020	20/06/2020	-	-	No water present in toe drain
Monthly	03/06/2020	03/06/2020	20/07/2020	-	-	No water present in toe drain
Monthly	08/07/2020	08/07/2020	20/08/2020	-	-	No water present in toe drain
Monthly	18/08/2020	18/08/2020	20/09/2020	-	-	No water present in toe drain
Monthly	02/09/2020	02/09/2020	20/10/2020	-	-	No water present in toe drain
Monthly	14/10/2020	14/10/2020	20/11/2020	-	-	No water present in toe drain
Monthly	12/11/2020	12/11/2020	18/11/2020	-	-	No water present in toe drain
Monthly	09/12/2020	09/12/2020	20/01/2021	-	-	No water present in toe drain
Number of Samples Collected				0	0	
Lowest Value				0.0	0	
Mean of Sample				0.0	0	
Highest Sample Value				0.0	0	
Median				0.0	0	

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)	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)	Sulfate (mg/L)	Total Hardness (mg/L)	Total Dissolved Solids (mg/L)	Total Suspended Solids (mg/L)	Zinc (mg/L)	Comments	
Quarterly	15/01/2020	15/01/2020	20/02/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No water present in toe drain
Quarterly	15/04/2020	15/04/2020	20/05/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No water present in toe drain
Quarterly	08/07/2020	08/07/2020	20/08/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No water present in toe drain
Quarterly	14/10/2020	14/10/2020	20/11/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No water present in toe drain



## Ambient Noise

### Q1 Noise Monitoring

Daytime Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	17/02/2020	16/03/2020	20/03/2020	<20	<20	-	
N11	17/02/2020	16/03/2020	20/03/2020	<20	<20	35	
N09	18/02/2020	16/03/2020	20/03/2020	<20	<20	38	
N10	18/02/2020	16/03/2020	20/03/2020	<20	<21	35	
N12	17/02/2020	16/03/2020	20/03/2020	<20	<20	37	
N15	25/02/2020	16/03/2020	20/03/2020	18	15	35	
N17	25/02/2020	16/03/2020	20/03/2020	<20	<20	36	
N16	25/02/2020	16/03/2020	20/03/2020	<20	<20	36	

Evening Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	17/02/2020	16/03/2020	20/03/2020	30	28	-	
N11	25/02/2020	16/03/2020	20/03/2020	<20	<20	35	
N09	17/02/2020	16/03/2020	20/03/2020	<20	<20	38	
N10	25/02/2020	16/03/2020	20/03/2020	<20	<20	35	
N12	25/02/2020	16/03/2020	20/03/2020	<20	<20	37	
N15	17/02/2020	16/03/2020	20/03/2020	<20	<20	35	
N17	17/02/2020	16/03/2020	20/03/2020	<20	<20	36	
N16	17/02/2020	16/03/2020	20/03/2020	23	22	36	

Night time Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	25/02/2020	16/03/2020	20/03/2020	24	24	-	
N11	24/02/2020	16/03/2020	20/03/2020	<20	<20	35	
N09	25/02/2020	16/03/2020	20/03/2020	<20	<20	38	
N10	24/02/2020	16/03/2020	20/03/2020	<20	<20	35	
N12	24/02/2020	16/03/2020	20/03/2020	<20	<20	37	
N15	25/02/2020	16/03/2020	20/03/2020	24	20	35	
N17	26/02/2020	16/03/2020	20/03/2020	<20	<20	36	
N16	25/02/2020	16/03/2020	20/03/2020	<20	<20	36	

n/a - Mine noise emission not discernible

### Q2 Noise Monitoring

Daytime Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	13/05/2020	28/05/2020	20/06/2020	28	34	-	
N11	13/05/2020	28/05/2020	20/06/2020	24	24	35	
N09	12/05/2020	28/05/2020	20/06/2020	<20	<20	38	
N10	13/05/2020	28/05/2020	20/06/2020	21	21	35	
N12	13/05/2020	28/05/2020	20/06/2020	<20	<20	37	
N15	12/05/2020	28/05/2020	20/06/2020	32	23	35	
N17	12/05/2020	28/05/2020	20/06/2020	<20	<20	36	
N16	12/05/2020	28/05/2020	20/06/2020	20	20	36	

Evening Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	12/05/2020	28/05/2020	20/06/2020	27	33	-	
N11	12/05/2020	28/05/2020	20/06/2020	<20	<20	35	
N09	12/05/2020	28/05/2020	20/06/2020	<20	<20	38	
N10	12/05/2020	28/05/2020	20/06/2020	<20	<20	35	
N12	11/05/2020	28/05/2020	20/06/2020	<20	<20	37	
N15	13/05/2020	28/05/2020	20/06/2020	<20	21	35	
N17	12/05/2020	28/05/2020	20/06/2020	<20	<20	36	
N16	13/05/2020	28/05/2020	20/06/2020	<20	<20	36	

Night time Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	13/05/2020	28/05/2020	20/06/2020	34	31	-	
N11	12/05/2020	28/05/2020	20/06/2020	20	21	35	
N09	14/05/2020	28/05/2020	20/06/2020	<20	<20	38	
N10	12/05/2020	28/05/2020	20/06/2020	<20	<20	35	
N12	12/05/2020	28/05/2020	20/06/2020	22	22	37	
N15	13/05/2020	28/05/2020	20/06/2020	21	23	35	
N17	14/05/2020	28/05/2020	20/06/2020	26	27	36	
N16	13/05/2020	28/05/2020	20/06/2020	27	26	36	

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 <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	25/08/2020	17/09/2020	20/09/2020	53	53	-	
N11	24/08/2020	17/09/2020	20/09/2020	20	15	35	
N09	24/08/2020	17/09/2020	20/09/2020	18	17	38	
N10	24/08/2020	17/09/2020	20/09/2020	32	22	35	
N12	24/08/2020	17/09/2020	20/09/2020	<20	<20	37	CGO barely audible
N15	24/08/2020	17/09/2020	20/09/2020	<20	<20	35	CGO inaudible
N17	25/08/2020	17/09/2020	20/09/2020	<20	15	36	
N16	24/08/2020	17/09/2020	20/09/2020	<20	<20	36	CGO inaudible

Evening Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	24/08/2020	17/09/2020	20/09/2020	39	40	-	
N11	24/08/2020	17/09/2020	20/09/2020	27	27	35	
N09	25/08/2020	17/09/2020	20/09/2020	15	19	38	
N10	25/08/2020	17/09/2020	20/09/2020	20	19	35	
N12	24/08/2020	17/09/2020	20/09/2020	22	20	37	
N15	24/08/2020	17/09/2020	20/09/2020	<20	<20	35	CGO inaudible
N17	25/08/2020	17/09/2020	20/09/2020	26	15	36	
N16	24/08/2020	17/09/2020	20/09/2020	<20	<20	36	CGO inaudible

Night time Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	24/08/2020	17/09/2020	20/09/2020	43	43	-	
N11	25/08/2020	17/09/2020	20/09/2020	25	27	35	
N09	25/08/2020	17/09/2020	20/09/2020	20	20	38	
N10	25/08/2020	17/09/2020	20/09/2020	20	20	35	
N12	25/08/2020	17/09/2020	20/09/2020	25	24	37	
N15	24/08/2020	17/09/2020	20/09/2020	<20	<20	35	CGO inaudible
N17	26/08/2020	17/09/2020	20/09/2020	23	26	36	
N16	24/08/2020	17/09/2020	20/09/2020	<20	<20	36	CGO inaudible

N/A - Mine noise emission not discernible

### Q4 Noise Monitoring

Daytime Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	27/11/2020	17/12/2020	18/12/2020	40	40	-	
N11	06/11/2020	17/12/2020	18/12/2020	20	<20	35	
N09	06/11/2020	17/12/2020	18/12/2020	<20	<20	38	CGO inaudible
N10	06/11/2020	17/12/2020	18/12/2020	30	28	35	
N12	06/11/2020	17/12/2020	18/12/2020	<20	<20	37	CGO barely audible
N15	06/11/2020	17/12/2020	18/12/2020	30	31	35	
N17	06/11/2020	17/12/2020	18/12/2020	33	30	36	
N16	06/11/2020	17/12/2020	18/12/2020	35	33	36	

Evening Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	04/11/2020	17/12/2020	18/12/2020	36	35	-	
N11	26/11/2020	17/12/2020	18/12/2020	<20	<20	35	CGO inaudible
N09	04/11/2020	17/12/2020	18/12/2020	<20	<20	38	CGO inaudible
N10	26/11/2020	17/12/2020	18/12/2020	<20	<20	35	CGO barely audible
N12	26/11/2020	17/12/2020	18/12/2020	<20	<20	37	CGO barely audible
N15	04/11/2020	17/12/2020	18/12/2020	22	28	35	
N17	04/11/2020	17/12/2020	18/12/2020	<20	<20	36	CGO barely audible
N16	04/11/2020	17/12/2020	18/12/2020	<20	<20	36	CGO inaudible

Night time Mine Operating Intrusive Noise Levels (dBA re 20 µPa)				Mine Contributed LA <sub>eq(15min)</sub> - dBA		Noise Criteria LA <sub>eq(15min)</sub> - dBA	Comments
Location	Date Sampled	Date Obtained	Date Published	Survey 1	Survey 2		
N01	04/11/2020	17/12/2020	18/12/2020	34	32	-	
N11	26/11/2020	17/12/2020	18/12/2020	<20	<20	35	CGO inaudible
N09	06/11/2020	17/12/2020	18/12/2020	23	20	38	
N10	26/11/2020	17/12/2020	18/12/2020	<20	<20	35	CGO inaudible
N12	26/11/2020	17/12/2020	18/12/2020	<20	<20	37	CGO inaudible
N15	06/11/2020	17/12/2020	18/12/2020	20	25	35	
N17	06/11/2020	17/12/2020	18/12/2020	22	20	36	
N16	06/11/2020	17/12/2020	18/12/2020	20	25	36	







**Monitoring Point: 0002**

Real monitoring, vertical suspension and ground vibration joint particle velocity recorded to the south of KM 02.00 boundary

Blow Number	Day/Date	Time	Date Published	Target Frequency (Hz)	SMB at Blow Time			Comments	
					Ground Particle Velocity (mm/s)	Vertical Suspension (mm/s)	Ground Vibration (mm/s)		
1563-035	Thursday, 3 January 2020	12:28:39	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-046	Thursday, 3 January 2020	12:30:29	11/02/2020	20/02/2020	1	109	0.09	86.9	
1563-055	Thursday, 3 January 2020	12:32:17	11/02/2020	20/02/2020	1	105	0.11	100.0	
1563-064	Thursday, 3 January 2020	12:34:07	11/02/2020	20/02/2020	1	103	0.11	100.0	
1563-146-165	Thursday, 3 January 2020	12:37:57	11/02/2020	20/02/2020	1	115	0.11	100.0	
1563-147	Thursday, 3 January 2020	12:39:52	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-148	Thursday, 3 January 2020	12:41:50	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-149	Thursday, 3 January 2020	12:43:51	11/02/2020	20/02/2020	1	115	0.07	86.9	
1563-150	Thursday, 3 January 2020	12:45:55	11/02/2020	20/02/2020	1	115	0.07	86.9	
1563-151	Thursday, 3 January 2020	12:47:59	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-152	Thursday, 3 January 2020	12:50:05	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-153	Thursday, 3 January 2020	12:52:11	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-154	Thursday, 3 January 2020	12:54:17	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-155	Thursday, 3 January 2020	12:56:24	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-156	Thursday, 3 January 2020	12:58:31	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-157	Thursday, 3 January 2020	13:00:36	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-158	Thursday, 3 January 2020	13:02:45	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-159	Thursday, 3 January 2020	13:04:51	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-160	Thursday, 3 January 2020	13:06:59	11/02/2020	20/02/2020	1	115	0.11	100.0	
1563-161	Thursday, 3 January 2020	13:09:07	11/02/2020	20/02/2020	1	115	0.11	100.0	
1563-162	Thursday, 3 January 2020	13:11:14	11/02/2020	20/02/2020	1	115	0.11	100.0	
1563-163	Thursday, 3 January 2020	13:13:21	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-164	Thursday, 3 January 2020	13:15:29	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-165	Thursday, 3 January 2020	13:17:37	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-166	Thursday, 3 January 2020	13:19:44	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-167	Thursday, 3 January 2020	13:21:52	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-168	Thursday, 3 January 2020	13:23:59	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-169	Thursday, 3 January 2020	13:26:07	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-170	Thursday, 3 January 2020	13:28:15	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-171	Thursday, 3 January 2020	13:30:22	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-172	Thursday, 3 January 2020	13:32:30	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-173	Thursday, 3 January 2020	13:34:37	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-174	Thursday, 3 January 2020	13:36:45	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-175	Thursday, 3 January 2020	13:38:52	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-176	Thursday, 3 January 2020	13:41:00	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-177	Thursday, 3 January 2020	13:43:07	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-178	Thursday, 3 January 2020	13:45:15	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-179	Thursday, 3 January 2020	13:47:22	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-180	Thursday, 3 January 2020	13:49:30	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-181	Thursday, 3 January 2020	13:51:37	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-182	Thursday, 3 January 2020	13:53:45	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-183	Thursday, 3 January 2020	13:55:52	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-184	Thursday, 3 January 2020	13:58:00	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-185	Thursday, 3 January 2020	14:00:07	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-186	Thursday, 3 January 2020	14:02:15	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-187	Thursday, 3 January 2020	14:04:22	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-188	Thursday, 3 January 2020	14:06:30	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-189	Thursday, 3 January 2020	14:08:37	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-190	Thursday, 3 January 2020	14:10:45	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-191	Thursday, 3 January 2020	14:12:52	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-192	Thursday, 3 January 2020	14:15:00	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-193	Thursday, 3 January 2020	14:17:07	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-194	Thursday, 3 January 2020	14:19:15	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-195	Thursday, 3 January 2020	14:21:22	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-196	Thursday, 3 January 2020	14:23:30	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-197	Thursday, 3 January 2020	14:25:37	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-198	Thursday, 3 January 2020	14:27:45	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-199	Thursday, 3 January 2020	14:29:52	11/02/2020	20/02/2020	1	115	0.09	86.9	
1563-200	Thursday, 3 January 2020	14:32:00	11/02/2020	20/02/2020	1	115	0.09	86.9	







**Monitoring Point: BM06.1 - Canal North**  
 Real time monitoring of actual water surface and ground vibration peak particle velocity recorded at private residence to the north, north east of M11221 boundary

Blot Number	Day/Date	Time	Date Observed	Date Published	Viber Threshold		BM06.1 at Blot Time		Comments
					Ground Vibration (mm/s)	Actual Dispersion (mm/s)	Ground Vibration (mm/s)	Actual Dispersion (mm/s)	
BM06-1	Thursday, 3 January 2020	12:50:00	03/01/2020	03/01/2020	5	135	0.00	92.3	
BM06-191	Thursday, 3 January 2020	12:28:39	03/01/2020	03/01/2020	5	135	0.00	92.3	
BM06-192	Thursday, 3 January 2020	12:49:53	03/01/2020	03/01/2020	5	135	0.00	92.3	
BM06-193	Thursday, 3 January 2020	12:57:57	03/01/2020	03/01/2020	5	135	0.00	92.3	
BM06-194	Thursday, 3 January 2020	12:57:57	03/01/2020	03/01/2020	5	135	0.00	92.3	
BM06-195	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.19	86.0	
BM06-196	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.10	88.0	
BM06-197	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.09	88.0	
BM06-198	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.12	86.0	
BM06-199	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.14	85.0	
BM06-200	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.17	83.0	
BM06-201	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.17	83.0	
BM06-202	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.20	81.0	
BM06-203	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.22	79.0	
BM06-204	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.24	77.0	
BM06-205	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.26	75.0	
BM06-206	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.28	73.0	
BM06-207	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.30	71.0	
BM06-208	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.32	69.0	
BM06-209	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.34	67.0	
BM06-210	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.36	65.0	
BM06-211	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.38	63.0	
BM06-212	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.40	61.0	
BM06-213	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.42	59.0	
BM06-214	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.44	57.0	
BM06-215	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.46	55.0	
BM06-216	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.48	53.0	
BM06-217	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.50	51.0	
BM06-218	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.52	49.0	
BM06-219	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.54	47.0	
BM06-220	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.56	45.0	
BM06-221	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.58	43.0	
BM06-222	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.60	41.0	
BM06-223	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.62	39.0	
BM06-224	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.64	37.0	
BM06-225	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.66	35.0	
BM06-226	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.68	33.0	
BM06-227	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.70	31.0	
BM06-228	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.72	29.0	
BM06-229	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.74	27.0	
BM06-230	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.76	25.0	
BM06-231	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.78	23.0	
BM06-232	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.80	21.0	
BM06-233	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.82	19.0	
BM06-234	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.84	17.0	
BM06-235	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.86	15.0	
BM06-236	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.88	13.0	
BM06-237	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.90	11.0	
BM06-238	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.92	9.0	
BM06-239	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.94	7.0	
BM06-240	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.96	5.0	
BM06-241	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	0.98	3.0	
BM06-242	Thursday, 3 January 2020	12:58:15	03/01/2020	03/01/2020	5	135	1.00	1.0	





## 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	4	8.91	17.5	17.3	26.7	
Weekly	February	4	3.36	11.4	11.9	18.6	
Weekly	March	5	5.6	15.9	13.3	29.9	
Weekly	April	4	7.8	15.5	15.4	19.3	
Weekly	May	5	2.62	15.3	19.0	25.5	
Weekly	June	4	1.2	19.5	24.9	26.9	
Weekly	July	4	1.5	12.7	9.8	29.8	
Weekly	August	5	14.9	21.7	21.7	27.0	
Weekly	September	4	4.7	22.5	26.5	32.2	
Weekly	October	4	6.3	34.5	22.2	87.2	
Weekly	November	5	13.83	37.9	33.4	82.6	
Weekly	December	4	0.63	14.9	11.1	36.9	

Frequency	Month	No Sampled during Month	WAD Cyanide (mg/L)		Concentration Limits		Comments
			Minimum	Maximum	90th Percentile	100th Percentile	
Twice daily	January	60	0	6.6	20ppm	30ppm	
Twice daily	February	46	0	14.3	20ppm	30ppm	Shutdown from 03/02/2020 afternoon to 09/02/2020 morning
Twice daily	March	61	0	6.9	20ppm	30ppm	Shutdown 10/03/2020 morning
Twice daily	April	57	0.17	9.4	20ppm	30ppm	Shutdown 01/04/2020 morning, 28/04/2020 Morning and Afternoon
Twice daily	May	62	0.16	5.5	20ppm	30ppm	
Twice daily	June	59	0	8.0	20ppm	30ppm	Shutdown 26/06/2020 Morning
Twice daily	July	62	0.25	6.6	20ppm	30ppm	
Twice daily	August	51	0	10.1	20ppm	30ppm	Shutdown 05/08/20 Morning to 10/08/20 Afternoon
Twice daily	September	60	0.3	8.8	20ppm	30ppm	
Twice daily	October	62	0	5.4	20ppm	30ppm	Switched to IWL on 23 October
Twice daily	November	60	0	8.2	20ppm	30ppm	
Twice daily	December	52	0.235	9.8	20ppm	30ppm	Shutdown 01/12/20 Afternoon to 06/12/20 Morning





## EPL Exceedances

