Environmental Monitoring Data

January 2018

EPL No: 11912
Licensee: Evolution Mining (Cowal) Pty Limited
Address: PO Box 210 West Wyalong NSW 2671
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Dust

Monitoring Point: 1 <McLintocks Shed>
Dust monitoring, Dust gauge located on private property to the west of ML1535 boundary

Frequency	Date Sampled	Date Obtained	Date Published	Particulates (g/m^2/mth)	Comments
Monthly	05/01/2018	20/02/2018		9.2	Some bugs
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				1	
Lowest Value				9.2	
Mean of Sample				9.2	
Highest Sample Value				9.2	
Median				9.2	

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 (g/m^2/mth)	Comments
Monthly	05/01/2018	20/02/2018		6.0	Some Algae
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				1	
Lowest Value				6.0	
Mean of Sample				6.0	
Highest Sample Value				6.0	
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 Obtained	Date Published	Particulates (g/m^2/mth)	Comments
Monthly	05/01/2018	20/02/2018		3.8	
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				1	
Lowest Value				3.8	
Mean of Sample				3.8	
Highest Sample Value				3.8	
Median				3.8	

Monitoring Point: 4 <DG09>
Dust monitoring, Dust gauge located on private property to the south of ML1535 boundary

Frequency	Date Sampled	Date Obtained	Date Published	Particulates (g/m^2/mth)	Comments
Monthly	05/01/2018	20/02/2018		5.0	
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				1	
Lowest Value				5.0	
Mean of Sample				5.0	
Highest Sample Value				5.0	
Median				5.0	

Monitoring Point: 5 <Site 52>
Dust monitoring, Dust gauge located within ML1535 and north of the open pit

Frequency	Date Sampled	Date Obtained	Date Published	Particulates (g/m^2/mth)	Comments
Monthly	05/01/2018	20/02/2018		10.7	Algae
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				1	
Lowest Value				10.7	
Mean of Sample				10.7	
Highest Sample Value				10.7	
Median				10.7	

Dust

Monitoring Point: 6 <DG01>
Dust monitoring, Dust gauge located on private property to the north of ML1535 boundary

Frequency	Date Sampled	Date Obtained	Date Published	Particulates (g/m^2/mth)	Comments
Monthly	05/01/2018	20/02/2018		3.3	
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Monthly					
Number of Samples Collected				1	
Lowest Value				3.3	
Mean of Sample				3.3	
Highest Sample Value				3.3	
Median				3.3	

Monitoring Point: 6 <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^3)	Comments
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
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Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Every 7 days					
Number of Samples Collected				0	
Lowest Value				0.0	
Mean of Sample				0.0	
Highest Sample Value				0.0	
Median				0.0	

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		8.18	6814	17	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				8.2	6814	17	
Mean of Sample				8.2	6814	17	
Highest Sample Value				8.2	6814	17	
Median				8.2	6814	17	

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		8.5	2728	18	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				8.5	2728	18	
Mean of Sample				8.5	2728	18	
Highest Sample Value				8.5	2728	18	
Median				8.5	2728	18	

Lake Water

Monitoring Point: 14 <P1>
Ambient water quality monitoring, Surface water point within ML1535 on Lake Cowal

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Comments
Weekly	02/01/2018	02/01/2018		8.71	529	29	
Weekly	10/01/2018	10/01/2018		8.29	570	80	
Weekly	18/01/2018	18/01/2018		8.43	571.9	68	
Weekly	23/01/2018	23/01/2018		8.1	648	66	
Weekly							
Weekly							
Weekly					

Lake Water

Monitoring Point: 17 <B1>
Ambient water quality monitoring, Surface water point within ML1535 on Lake Cowal

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	Comments
Monthly	10/01/2018	10/01/2018		8.20	574	
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Number of Samples Collected				1	1	
Lowest Value				8.2	574.0	
Mean of Sample				8.2	574.0	
Highest Sample Value				8.2	574.0	
Median				8.2	574.0	

Frequency	Date Sampled	Date Obtained	Date Published	Alkalinity (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Lead (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Total Suspended Solids (mg/L)	Zinc (mg/L)	Comments
Quarterly	10/01/2018	22/01/2018		219	<0.001	0.008	<0.0001	0.002	<0.001	<0.001	0.003	<0.01	84	<0.005	
Quarterly															
Quarterly															
Quarterly															

Monitoring Point: 18 <B6>
Ambient water quality monitoring, Surface water point on Lake Cowal to the south-east of ML1535 boundary

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	Comments
Monthly	10/01/2018	10/01/2018		8.10	533	
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Number of Samples Collected				1	1	
Lowest Value				8.1	533.0	
Mean of Sample				8.1	533.0	
Highest Sample Value				8.1	533.0	
Median				8.1	533.0	

Frequency	Date Sampled	Date Obtained	Date Published	Alkalinity (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Lead (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Total Suspended Solids (mg/L)	Zinc (mg/L)	Comments
Quarterly	10/01/2018	22/01/2018		192	<0.001	0.007	<0.0001	0.002	<0.001	<0.001	0.003	<0.01	59	<0.005	
Quarterly															
Quarterly															
Quarterly															

Groundwater

Monitoring Point: 19 <P555A-R>
Groundwater quality monitoring, Piezometer located up gradient of southern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	04/01/2018	04/01/2018	02/02/2018	6.7	29480	20.917	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	29480	20.917	
Mean of Sample				6.7	29480	20.917	
Highest Sample Value				6.7	29480	20.917	
Median				6.7	29480	20.917	

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
Quarterly	04/01/2018		02/02/2018	835	<0.0005	<0.0005	0.0006	329	9640	0.001	<0.005	0.016	<0.0002	880	0.161	0.0016	0.0174	25	0.003	6790	2700	22200	4440	0.007	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 21 <P558A-R>
Groundwater quality monitoring, Piezometer located up gradient of northern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	04/01/2018	04/01/2018	02/02/2018	6.68	33320	20.194	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	33320	20.194	
Mean of Sample				6.7	33320	20.194	
Highest Sample Value				6.7	33320	20.194	
Median				6.7	33320	20.194	

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
Quarterly	04/01/2018		02/02/2018	803	<0.0005	<0.0005	<0.0002	318	10600	0.041	<0.005	3.24	<0.0002	879	0.161	0.0128	1.16	28	0.006	7960	3340	22900	4410	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 22 <P412A-R>
Groundwater quality monitoring, Piezometer located down gradient of southern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	04/01/2018	04/01/2018	02/02/2018	6.54	40260	9.838	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.5	40260	9.838	
Mean of Sample				6.5	40260	9.838	
Highest Sample Value				6.5	40260	9.838	
Median				6.5	40260	9.838	

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
Quarterly	04/01/2018		02/02/2018	518	<0.0005	0.0009	0.0007	800	13600	0.001	<0.005	0.097	0.0003	1420	0.0313	0.0014	0.0588	46	0.003	8780	3800	27500	7840	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 23 <P412A>
Groundwater quality monitoring, Piezometer located down gradient of southern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	04/01/2018	04/01/2018	02/02/2018	6.64	41640	11.392	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.6	41640	11.392	
Mean of Sample				6.6	41640	11.392	
Highest Sample Value				6.6	41640	11.392	
Median				6.6	41640	11.392	

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
Quarterly	04/01/2018		02/02/2018	461	<0.0005	<0.0005	<0.0002	823	13700	0.001	<0.005	0.114	0.0003	1570	0.0055	0.0012	0.039	71	0.003	8810	3650	30600	8520	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

Groundwater

Monitoring Point: 24 <P414A>
Groundwater quality monitoring, Piezometer located down gradient of southern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	05/01/2018	05/01/2018	02/02/2018	6.67	39830	11.909	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	39830	11.909	
Mean of Sample				6.7	39830	11.909	
Highest Sample Value				6.7	39830	11.909	
Median				6.7	39830	11.909	

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
Quarterly	05/01/2018		02/02/2018	610	<0.0005	<0.0005	<0.0002	577	13600	<0.001	<0.005	0.01	<0.0002	1420	0.0032	0.0005	0.0249	40	0.015	8530	3330	27900	7290	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 25 <P414B>
Groundwater quality monitoring, Piezometer located down gradient of southern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	17/01/2018	17/01/2018	02/02/2018	6.7	40450	10.686	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	40450	10.686	
Mean of Sample				6.7	40450	10.686	
Highest Sample Value				6.7	40450	10.686	
Median				6.7	40450	10.686	

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
Quarterly	17/01/2018		02/02/2018	517	<0.00050	<0.00050	<0.00020	439	13700	<0.00100	<0.005	<0.00500	<0.00020	1390	0.071	0.0004	0.0009	27	0.004	8750	2930	32600	6820	0.01	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 26 <PP03>
Groundwater quality monitoring, Piezometer located near the processing plant area

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	19/01/2018	19/01/2018	02/02/2018	7.8	2100	16.501	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				7.8	2100	16.501	
Mean of Sample				7.8	2100	16.501	
Highest Sample Value				7.8	2100	16.501	
Median				7.8	2100	16.501	

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
Quarterly	19/01/2018		02/02/2018	193	0.0006	0.001	0.00005	98	841	0.0034	<0.004	0.004	0.0002	55	<0.0005	0.007	0.0005	9	0.0009	558	472	2000	471	0.002	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 27 <PP04>
Groundwater quality monitoring, Piezometer located near the processing plant area

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	19/01/2018	19/01/2018	02/02/2018	6.71	47600	15.887	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	47600	15.887	
Mean of Sample				6.7	47600	15.887	
Highest Sample Value				6.7	47600	15.887	
Median				6.7	47600	15.887	

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
Quarterly	19/01/2018		02/02/2018	524	<0.0005	<0.0005	<0.0002	812	17200	<0.001	<0.005	<0.005	0.0009	1630	0.0009	0.0012	0.0048	50	0.01	9660	3480	39000	8740	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

Groundwater

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

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	08/01/2018	08/01/2018	02/02/2018	6.49	42660	12.42	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.5	42660	12.420	
Mean of Sample				6.5	42660	12.420	
Highest Sample Value				6.5	42660	12.420	
Median				6.5	42660	12.420	

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
Quarterly	08/01/2018		02/02/2018	522	<0.0005	<0.0005	0.0007	720	14900	<0.001	<0.005	0.005	<0.0002	1550	0.0497	0.0013	0.0128	34	0.005	9100	3340	35600	8180	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 31 <P417B>

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	17/01/2018	17/01/2018	02/02/2018	6.7	39890	11.989	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	39890	11.989	
Mean of Sample				6.7	39890	11.989	
Highest Sample Value				6.7	39890	11.989	
Median				6.7	39890	11.989	

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
Quarterly	17/01/2018		02/02/2018	252	<0.00050	<0.00050	<0.00020	605	13600	<0.00100	<0.005	<0.00500	0.0002	1460	<0.00050	0.0003	0.0006	23	0.008	8490	2510	31200	7520	0.009	
Quarterly																									
Quarterly																									
Quarterly																									

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

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	05/01/2018	05/01/2018	02/02/2018	6.51	48010	9.839	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.5	48010	9.839	
Mean of Sample				6.5	48010	9.839	
Highest Sample Value				6.5	48010	9.839	
Median				6.5	48010	9.839	

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
Quarterly	05/01/2018		02/02/2018	639	<0.0005	<0.0005	<0.0002	553	15200	0.002	<0.005	0.008	<0.0002	1450	0.211	0.0007	0.0098	23	0.005	10500	4730	37800	7350	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

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

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	05/01/2018	05/01/2018	02/02/2018	6.47	41280	9.81	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.5	41280	9.810	
Mean of Sample				6.5	41280	9.810	
Highest Sample Value				6.5	41280	9.810	
Median				6.5	41280	9.810	

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
Quarterly	05/01/2018		02/02/2018	619	<0.0005	<0.0005	<0.0002	334	12800	0.048	<0.005	0.49	<0.0002	1200	0.102	0.0076	0.813	10	0.003	9750	4250	31000	5780	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

Groundwater

Monitoring Point: 34 <TSFNA>
Groundwater quality monitoring, Piezometer located down gradient of northern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	22/01/2018	22/01/2018	02/02/2018	6.62	47120	11.549	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.6	47120	11.549	
Mean of Sample				6.6	47120	11.549	
Highest Sample Value				6.6	47120	11.549	
Median				6.6	47120	11.549	

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
Quarterly	22/01/2018		02/02/2018	551	<0.00050	0.0011	<0.00020	605	15200	<0.00100	<0.005	0.037	<0.00020	1610	1.73	0.003	0.0047	32	<0.00200	11300	4370	30400	8140	<0.00500	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 36 <PDB1A>
Groundwater quality monitoring, Pit dewatering bore

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	10/01/2018	10/01/2018	02/02/2018	6.38	50970	15.718	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.4	50970	15.718	
Mean of Sample				6.4	50970	15.718	
Highest Sample Value				6.4	50970	15.718	
Median				6.4	50970	15.718	

Frequency	Date Sampled	Date Obtained	Date Published	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)	Sulphate (mg/L)	Total Dissolved Solids (mg/L)	Total Hardness (mg/L)	Zinc (mg/L)	Comments
Quarterly	10/01/2018		02/02/2018	<0.00050	<0.00050	0.002	950	16900	<0.00100	<0.00500	<0.00020	1950	2.06	0.0008	0.0547	37	<0.00200	12000	4370	44000	10400	<0.00500	
Quarterly																							
Quarterly																							
Quarterly																							

Monitoring Point: 38 <PDB3A>
Groundwater quality monitoring, Pit dewatering bore

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	30/01/2018	30/01/2018	02/02/2018	6.73	47720	82.203	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	47720	82.203	
Mean of Sample				6.7	47720	82.203	
Highest Sample Value				6.7	47720	82.203	
Median				6.7	47720	82.203	

Frequency	Date Sampled	Date Obtained	Date Published	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)	Sulphate (mg/L)	Total Dissolved Solids (mg/L)	Total Hardness (mg/L)	Zinc (mg/L)	Comments
Quarterly	30/01/2018		02/02/2018	0.0015	0.002	0.0004	482	4320	0.002	0.011	<0.00020	486	0.09	0.0097	<0.00050	35	0.02	2610	3170	12200	3200	<0.00500	
Quarterly																							
Quarterly																							
Quarterly																							

Monitoring Point: 40 <PDB5A>
Groundwater quality monitoring, Pit dewatering bore

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	16/01/2018		02/02/2018	6.68	53670	30.484	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	53670	30.484	
Mean of Sample				6.7	53670	30.484	
Highest Sample Value				6.7	53670	30.484	
Median				6.7	53670	30.484	

Frequency	Date Sampled	Date Obtained	Date Published	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)	Sulphate (mg/L)	Total Dissolved Solids (mg/L)	Total Hardness (mg/L)	Zinc (mg/L)	Comments
Quarterly	16/01/2018		02/02/2018	<0.00050	0.0037	0.0096	868	17900	0.001	0.008	<0.00020	1860	0.0294	0.0055	0.0291	44.000	0.004	9380	3110	43300	9830	0.052	
Quarterly																							
Quarterly																							
Quarterly																							

Groundwater

Monitoring Point: 44 <MON01A>
Groundwater quality monitoring, Groundwater monitoring bore located to the east of the northern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	04/01/2018		02/02/2018	6.47	45360	10.881	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.5	45360	10.881	
Mean of Sample				6.5	45360	10.881	
Highest Sample Value				6.5	45360	10.881	
Median				6.5	45360	10.881	

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
Quarterly	04/01/2018		02/02/2018	333	<0.0005	0.0015	0.0005	515	14400	<0.001	<0.005	0.246	<0.0002	1420	1.59	0.0006	0.0226	25	<0.002	9850	4590	36000	7130	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 45 <MON02A>
Groundwater quality monitoring, Groundwater monitoring bore located to the south of the southern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	10/01/2018		02/02/2018	6.67	37760	9.301	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	37760	9.301	
Mean of Sample				6.7	37760	9.301	
Highest Sample Value				6.7	37760	9.301	
Median				6.7	37760	9.301	

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
Quarterly	10/01/2018		02/02/2018	722	<0.00050	<0.00050	<0.00020	486	12500	0.003	<0.005	0.021	<0.00020	1200	0.0383	0.0018	0.103	48	0.009	8060	3040	31200	6160	<0.00500	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 50 <TSFNB>
Groundwater quality monitoring, Piezometer located down gradient of northern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	10/01/2018		02/02/2018	6.4	43880	12.292	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.4	43880	12.292	
Mean of Sample				6.4	43880	12.292	
Highest Sample Value				6.4	43880	12.292	
Median				6.4	43880	12.292	

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
Quarterly	10/01/2018		02/02/2018	239	<0.00050	<0.00050	0.0005	466	14800	0.097	<0.005	<0.00500	<0.00020	1550	0.41	0.0779	2.39	60	0.005	10900	4300	31000	7550	<0.00500	
Quarterly																									
Quarterly																									
Quarterly																									

Monitoring Point: 51 <TSFNC>
Groundwater quality monitoring, Piezometer located down gradient of northern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	10/01/2018		02/02/2018	6.07	41450	12.716	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.1	41450	12.716	
Mean of Sample				6.1	41450	12.716	
Highest Sample Value				6.1	41450	12.716	
Median				6.1	41450	12.716	

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
Quarterly	10/01/2018		02/02/2018	131	<0.00050	<0.00050	0.0006	477	13900	0.01	<0.005	0.039	<0.00020	1460	0.049	0.0086	0.393	58	0.002	10200	4280	34800	7200	0.070	
Quarterly																									
Quarterly																									
Quarterly																									

Groundwater

Monitoring Point: 52 <PDB1B>
Groundwater quality monitoring, Pit dewatering bore

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	10/01/2018		02/02/2018	6.16	46640	5.349	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.2	46640	5.349	
Mean of Sample				6.2	46640	5.349	
Highest Sample Value				6.2	46640	5.349	
Median				6.2	46640	5.349	

Frequency	Date Sampled	Date Obtained	Date Published	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)	Sulphate (mg/L)	Total Dissolved Solids (mg/L)	Total Hardness (mg/L)	Zinc (mg/L)	Comments
Quarterly	10/01/2018		02/02/2018	<0.00050	<0.00050	<0.00020	823	16100	<0.00100	0.045	<0.00020	1850	0.517	0.0002	0.0079	27	<0.00200	10900	4610	42000	9670	<0.00500	
Quarterly																							
Quarterly																							
Quarterly																							

Monitoring Point: 53 <PDB3B>
Groundwater quality monitoring, Pit dewatering bore

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	30/01/2018		02/02/2018	6.13	47660	21.44	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.1	47660	21.440	
Mean of Sample				6.1	47660	21.440	
Highest Sample Value				6.1	47660	21.440	
Median				6.1	47660	21.440	

Frequency	Date Sampled	Date Obtained	Date Published	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)	Sulphate (mg/L)	Total Dissolved Solids (mg/L)	Total Hardness (mg/L)	Zinc (mg/L)	Comments
Quarterly	30/01/2018		02/02/2018	<0.00050	<0.00050	0.0007	1110	16900	<0.00100	0.007	0.0002	2270	0.021	0.0002	0.0016	65	0.016	9830	5050	44800	12100	<0.00500	
Quarterly																							
Quarterly																							
Quarterly																							

Monitoring Point: 54 <PDB5B>
Groundwater quality monitoring, Pit dewatering bore

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	16/01/2018		02/02/2018	5.91	46270	14.854	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				5.9	46270	14.854	
Mean of Sample				5.9	46270	14.854	
Highest Sample Value				5.9	46270	14.854	
Median				5.9	46270	14.854	

Frequency	Date Sampled	Date Obtained	Date Published	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)	Sulphate (mg/L)	Total Dissolved Solids (mg/L)	Total Hardness (mg/L)	Zinc (mg/L)	Comments
Quarterly	16/01/2018		02/02/2018	<0.00050	0.0013	0.0014	856	16200	0.004	<0.00500	<0.00020	1810	0.0172	0.0017	0.0332	48	<0.00200	8970	3180	41100	9590	<0.00500	
Quarterly																							
Quarterly																							
Quarterly																							

Monitoring Point: 55 <MON01B>
Groundwater quality monitoring, Groundwater monitoring bore located to the east of the northern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	17/01/2018		02/02/2018	6.71	40150	12.849	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	40150	12.849	
Mean of Sample				6.7	40150	12.849	
Highest Sample Value				6.7	40150	12.849	
Median				6.7	40150	12.849	

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
Quarterly	17/01/2018		02/02/2018	42	<0.00050	0.0007	0.0005	523	14200	0.002	<0.005	<0.00500	0.0020	1510	0.658	0.0002	0.0192	43	<0.00200	9780	3950	35600	7520	0.036	
Quarterly																									
Quarterly																									
Quarterly																									

Groundwater

Monitoring Point: 56 <MON028>
Groundwater quality monitoring, Groundwater monitoring bore located to the south of the southern tailings storage facility

Frequency	Date Sampled	Date Obtained	Date Published	Field - pH (units)	Field - Electrical Conductivity (µS/cm)	SWL (m)	Comments
Monthly	19/01/2018		02/02/2018	6.65	36430	8.026	
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Monthly							
Number of Samples Collected				1	1	1	
Lowest Value				6.7	36430	8.026	
Mean of Sample				6.7	36430	8.026	
Highest Sample Value				6.7	36430	8.026	
Median				6.7	36430	8.026	

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
Quarterly	19/01/2018		02/02/2018	881	<0.0005	<0.0005	<0.0002	439	13500	0.003	<0.005	0.041	<0.0002	1280	0.0381	0.0047	0.299	73	0.013	8070	3140	33600	6370	<0.005	
Quarterly																									
Quarterly																									
Quarterly																									

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	10/01/2018	10/01/2018		-	-	No water present in toe drain
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
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	10/01/2018	10/01/2018		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Quarterly																									
Quarterly																									
Quarterly																									

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	15/02/2018	10/01/2018		7.78	11684.2	
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Number of Samples Collected				1	1	
Lowest Value				7.8	11684	
Mean of Sample				7.8	11684	
Highest Sample Value				7.8	11684	
Median				7.8	11684	

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	10/01/2018	10/01/2018		282	<0.00050	<0.00050	0.0048	487	3360	0.002	<0.00500	<0.00020	391	0.283	0.0032	0.0007	25	0.003	1880	2110		9090	2	0.139	
Quarterly																									
Quarterly																									
Quarterly																									

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	15/02/2018	10/01/2018		-	-	No water present in toe drain
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
Monthly						
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	10/01/2018	10/01/2018		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Quarterly																									
Quarterly																									
Quarterly																									

Ambient Noise

Q1 Noise Monitoring

Daytime Mine Operating Intrusive Noise Levels (dBA re 20 µPa)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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

Q2 Noise Monitoring

Daytime Mine Operating Intrusive Noise Levels (dBA re 20 µPa)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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)

Location	Date Sampled	Date Obtained	Date Published	Mine Contributed $LA_{eq(15minute)}$ - dBA		Noise Criteria $LA_{eq(15minute)}$ - dBA	Comments
				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

					Trigger Threshold		BM01 at Blast Time		
Blast Number	**Day/Date**	**Time**	**Date Obtained**	**Date Published**	**Ground Vibration (mm/s)**	**Airblast Overpressure (dB(L))**	**Ground Vibration (mm/s)**	**Airblast Overpressure (dB(L))**	**Comments**
JANUARY									
876-30	Wednesday, 3 January 2018	12:25:51	05/02/2018		5	115	0.10	91.5	
876-32	Thursday, 4 January 2018	15:07:17	05/02/2018		5	115	0.10	88.0	
876-33	Monday, 8 January 2018	10:19:38	05/02/2018		5	115	0.10	94.0	
876-34	Tuesday, 9 January 2018	12:27:08	05/02/2018		5	115	0.10	91.5	
876-35	Wednesday, 10 January 2018	12:29:00	05/02/2018		5	115	0.10	88.0	
876-40	Thursday, 11 January 2018	12:31:52	05/02/2018		5	115	0.10	91.5	
876-29	Saturday, 13 January 2018	12:35:54	05/02/2018		5	115	0.10	107.5	
867-2	Tuesday, 16 January 2018	15:13:29	05/02/2018		5	115	0.10	88.0	
876-28	Tuesday, 16 January 2018	15:18:42	05/02/2018		5	115	0.10	91.5	
867-12	Friday, 19 January 2018	12:30:10	05/02/2018		5	115	0.10	88.0	
867-3	Monday, 22 January 2018	12:23:32	05/02/2018		5	115	0.10	88.0	
867-513	Wednesday, 24 January 2018	12:56:24	05/02/2018		5	115	0.10	102.8	
867-14	Thursday, 25 January 2018	12:30:28	05/02/2018		5	115	0.10	91.5	
867-15	Sunday, 28 January 2018	12:29:39	05/02/2018		1	95	0.10	91.5	
867-512	Tuesday, 30 January 2018	12:25:32	05/02/2018		5	115	0.10	97.5	
867-16	Tuesday, 30 January 2018	12:25:32	05/02/2018		5	115	0.10	97.5	

Monitoring Point: BM02

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

					Trigger Threshold		BM02 at Blast Time		
Blast Number	**Day/Date**	**Time**	**Date Obtained**	**Date Published**	**Ground Vibration (mm/s)**	**Airblast Overpressure (dB(L))**	**Ground Vibration (mm/s)**	**Airblast Overpressure (dB(L))**	**Comments**
JANUARY									
876-30	Wednesday, 3 January 2018	12:25:51	05/02/2018		5	115	0.12	88.0	
876-32	Thursday, 4 January 2018	15:07:17	05/02/2018		5	115	0.10	95.9	
876-33	Monday, 8 January 2018	10:19:38	05/02/2018		5	115	1.24	113.8	
876-34	Tuesday, 9 January 2018	12:27:08	05/02/2018		5	115	0.10	103.5	
876-35	Wednesday, 10 January 2018	12:29:00	05/02/2018		5	115	0.12	97.5	
876-40	Thursday, 11 January 2018	12:31:52	05/02/2018		5	115	0.12	98.8	
876-29	Saturday, 13 January 2018	12:35:54	05/02/2018		5	115	0.12	107.0	
867-2	Tuesday, 16 January 2018	15:13:29	05/02/2018		5	115	0.15	91.5	
876-28	Tuesday, 16 January 2018	15:18:42	05/02/2018		5	115	0.10	88.0	
867-12	Friday, 19 January 2018	12:30:10	05/02/2018		5	115	0.14	88.0	
867-3	Monday, 22 January 2018	12:23:32	05/02/2018		5	115	0.12	95.9	
867-513	Wednesday, 24 January 2018	12:56:24	05/02/2018		5	115	0.12	97.5	
867-14	Thursday, 25 January 2018	12:30:28	05/02/2018		5	115	0.13	95.9	
867-15	Sunday, 28 January 2018	12:29:39	05/02/2018		1	95	0.11	88.0	
867-512	Tuesday, 30 January 2018	12:25:32	05/02/2018		5	115	0.14	91.5	
867-16	Tuesday, 30 January 2018	12:25:32	05/02/2018		5	115	0.14	91.5	

Monitoring Point: BM03

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

					Trigger Threshold		BM03 at Blast Time		
Blast Number	**Day/Date**	**Time**	**Date Obtained**	**Date Published**	**Ground Vibration (mm/s)**	**Airblast Overpressure (dB(L))**	**Ground Vibration (mm/s)**	**Airblast Overpressure (dB(L))**	**Comments**
JANUARY									
876-30	Wednesday, 3 January 2018	12:25:51	05/02/2018		5	115	0.12	88.0	
876-32	Thursday, 4 January 2018	15:07:17	05/02/2018		5	115	0.13	91.5	
876-33	Monday, 8 January 2018	10:19:38	05/02/2018		5	115	0.13	88.0	
876-34	Tuesday, 9 January 2018	12:27:08	05/02/2018		5	115	0.13	91.5	
876-35	Wednesday, 10 January 2018	12:29:00	05/02/2018		5	115	0.12	88.0	
876-40	Thursday, 11 January 2018	12:31:52	05/02/2018		5	115	0.12	94.0	
876-29	Saturday, 13 January 2018	12:35:54	05/02/2018		5	115	0.12	91.5	
867-2	Tuesday, 16 January 2018	15:13:29	05/02/2018		5	115	0.15	91.5	
876-28	Tuesday, 16 January 2018	15:18:42	05/02/2018		5	115	0.12	94.0	
867-12	Friday, 19 January 2018	12:30:10	05/02/2018		5	115	0.17	91.5	
867-3	Monday, 22 January 2018	12:23:32	05/02/2018		5	115	0.16	91.5	
867-513	Wednesday, 24 January 2018	12:56:24	05/02/2018		5	115	0.13	95.9	
867-14	Thursday, 25 January 2018	12:30:28	05/02/2018		5	115	0.12	88.0	
867-15	Sunday, 28 January 2018	12:29:39	05/02/2018		1	95	0.14	91.5	
867-512	Tuesday, 30 January 2018	12:25:32	05/02/2018		5	115	0.18	91.5	
867-16	Tuesday, 30 January 2018	12:25:32	05/02/2018		5	115	0.18	91.5	

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

					Trigger Threshold		BM08.1 at Blast Time		
Blast Number	**Day/Date**	**Time**	**Date Obtained**	**Date Published**	**Ground Vibration (mm/s)**	**Airblast Overpressure (dB(L))**	**Ground Vibration (mm/s)**	**Airblast Overpressure (dB(L))**	**Comments**
JANUARY									
876-30	Wednesday, 3 January 2018	12:25:51	05/02/2018		5	115	0.02	91.5	
876-32	Thursday, 4 January 2018	15:07:17	05/02/2018		5	115	0.03	91.5	
876-33	Monday, 8 January 2018	10:19:38	05/02/2018		5	115	0.03	94.0	
876-34	Tuesday, 9 January 2018	12:27:08	05/02/2018		5	115	0.03	97.5	
876-35	Wednesday, 10 January 2018	12:29:00	05/02/2018		5	115	0.03	91.5	
876-40	Thursday, 11 January 2018	12:31:52	05/02/2018		5	115	0.01	94.0	
876-29	Saturday, 13 January 2018	12:35:54	05/02/2018		5	115	0.03	100.0	
867-2	Tuesday, 16 January 2018	15:13:29	05/02/2018		5	115	0.07	91.5	
876-28	Tuesday, 16 January 2018	15:18:42	05/02/2018		5	115	0.02	91.5	
867-12	Friday, 19 January 2018	12:30:10	05/02/2018		5	115	0.07	91.5	
867-3	Monday, 22 January 2018	12:23:32	05/02/2018		5	115	0.05	94.0	
867-513	Wednesday, 24 January 2018	12:56:24	05/02/2018		5	115	0.07	101.0	
867-14	Thursday, 25 January 2018	12:30:28	05/02/2018		5	115	0.03	88.0	
867-15	Sunday, 28 January 2018	12:29:39	05/02/2018		1	95	0.03	91.5	
867-512	Tuesday, 30 January 2018	12:25:32	05/02/2018		5	115	0.08	91.5	
867-16	Tuesday, 30 January 2018	12:25:32	05/02/2018		5	115	0.08	91.5	

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	**Toatl Number of blasts**	64	**Percentage of exceedances over 12 month period**	0

Cyanide

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

			Total Cyanide (mg/L)				
Frequency	**Month**	**No Sampled during Month**	**Minimum**	**Mean**	**Median**	**Maximum**	**Comments**
Weekly	January	5	19.1	45.7	49.9	63.7	
Weekly	February						
Weekly	March						
Weekly	April						
Weekly	May						
Weekly	June						
Weekly	July						
Weekly	August						
Weekly	September						
Weekly	October						
Weekly	November						
Weekly	December						

			WAD Cyanide (mg/L)		Concentration Limits		
Frequency	**Month**	**No Sampled during Month**	**Minimum**	**Maximum**	**90th Percentile**	**100th Percentile**	**Comments**
Twice daily	January	62	1.2	13.8	20ppm	30ppm	
Twice daily	February				20ppm	30ppm	
Twice daily	March				20ppm	30ppm	
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

EPL Correction Log

Monitoring Point	Monitoring Point Type	Date Sampled	Date Obtained	Date Originally Published	Parameter	Original	Correction	Comments