



Teralba Quarry Environmental Monitoring Summary

July 2023

Environmental Protection Licence (EPL):	536
Licensee:	Metromix Pty Limited
Licensee Address:	PO Box 1295 Parramatta, NSW 2124
Premises:	Metromix Pty Limited Teralba Quarry Rhondda Road Teralba, NSW 2284
Licensee Website:	https://www.metromix.com.au/
Licensee Website - Monitoring Results:	https://www.metromix.com.au/resources/#quarry
EPA Public Register:	https://www.epa.nsw.gov.au/licensing-and-regulation/public-registers
Prepared by:	R. W. Corkery & Co.
Sample Period:	July 2023
Date Last Data Received	31 August 2023
Date of Report	31 August 2023

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Deposited Dust

Sample Period Start: 3/07/2023
Sample Period End: 1/08/2023
Sample Frequency: 30 ± 2 days
Sample Collected By: Metromix - AL
Date Received by Laboratory: 1/08/2023
Date Results Received by Metromix: 10/08/2023

EPA Identification No.	Location	Criteria (g/m ² /month)	Insoluble Solids (g/m ² /month)	Ash Fraction (g/m ² /month)	% Ash Fraction
1	Hillside Crescent	4.0	0.1	0.1	100
8	Rodgers Street	4.0	0.1	0.1	100
9	Rhondda Road	4.0	1.2	1.0	83
11	Myrtle Street	4.0	0.3	0.3	100
23	York Street	4.0	0.1	0.1	100

Comments

No exceedances of the approved criteria were detected during the sample period.

Deposited Dust - Year to Date

	Rhondda Road			Myrtle Street			Hillside Crescent			Rodgers Street			York Street		
	Total Insoluble Solids	Ash Fraction	% Ash	Total Insoluble Solids	Ash Fraction	% Ash	Total Insoluble Solids	Ash Fraction	% Ash	Total Insoluble Solids	Ash Fraction	% Ash	Total Insoluble Solids	Ash Fraction	% Ash
Units	g/m ² /month	g/m ² /month		g/m ² /month	g/m ² /month		g/m ² /month	g/m ² /month		g/m ² /month	g/m ² /month		g/m ² /month	g/m ² /month	
EPA Approved Level	4.0			4.0			4.0			4.0			4.0		
January	0.2	0.2	100	0.5	0.4	80	0.3	0.3	100	0.4	0.2	50	0.8	0.6	75
February	5.2	4.5	87	0.4	0.1	25	0.5	0.1	20	0.4	0.2	50	0.8	0.2	25
March	2.1	1.6	76	1.3	0.8	62	0.7	0.3	43	0.8	0.5	63	1.1	0.7	64
April	0.4	0.2	50	0.4	0.1	25	0.3	0.1	33	0.3	0.1	33	0.4	0.2	50
May	0.5	0.2	40	0.3	0.1	33	0.4	0.1	25	0.3	0.1	33	0.7	0.2	29
June	0.3	0.2	67	0.3	0.2	67	0.1	0.1	100	0.1	0.1	100	0.5	0.3	60
July	1.2	1.0	83	0.3	0.3	100	0.1	0.1	100	0.1	0.1	100	0.1	0.1	100
August															
September															
October															
November															
December															
Annual Average	1.4	1.1	71.8	0.5	0.3	55.9	0.3	0.2	60.2	0.3	0.2	61.3	0.6	0.3	57.5
Annual Maximum	5.2	4.5	100.0	1.3	0.8	100.0	0.7	0.3	100.0	0.8	0.5	100.0	1.1	0.7	100.0
Annual Minimum	0.2	0.2	40.0	0.3	0.1	25.0	0.1	0.1	20.0	0.1	0.1	33.3	0.1	0.1	25.0

Particulate Matter (PM₁₀)

Sample Location: EPA 3 - Rodgers Street
Sample Frequency: 6 days

Date Sample Taken (24-hr)	Collected by	Date Results Received	PM ₁₀ µg/m ³	Monthly Average Criteria (µg/m ³)	Annual Average Criteria (µg/m ³)
04/07/2023	CBased - TD	13/07/2023	9.4	50	
10/07/2023	CBased - MB	18/07/2023	12.9	50	
16/07/2023	CBased - MB, TD	24/07/2023	9.3	50	
22/07/2023	CBased - TD	1/08/2023	9.8	50	
28/07/2023	CBased - MB	7/08/2023	16.8	50	
Monthly Average			11.6		25/30*
*Project Approval (PA 10_0183) outlines the annual average PM ₁₀ criteria to be 30µg/m ³ . However, EPL 536 Condition R4.5a) requires that the air quality monitoring data is assessed against the Air Impact Assessment Criteria outlined in EPA's <i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW</i> . The most up to date version of this guideline was published in 2022 and outlines the annual average PM ₁₀ criteria to be 25µg/m ³ . Metromix has considered both criteria for its review of particulate matter monitoring.					

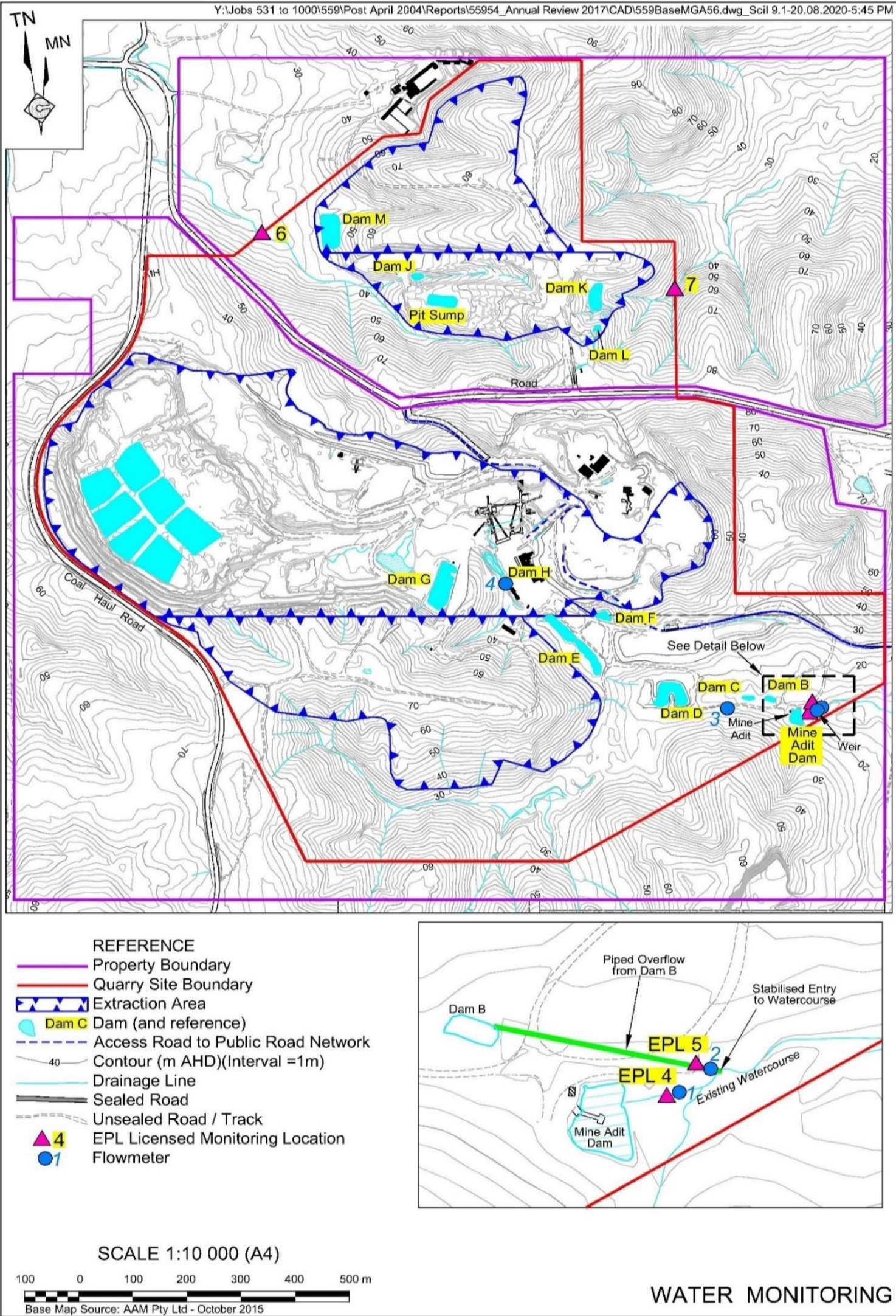
Comments

All PM₁₀ results remained below the approved criteria for the sample period.

Particulate Matter (PM₁₀) - Year to Date

Date	PM ₁₀ (µg/m ³)	Monthly Average (µg/m ³)	Year to Date Average (µg/m ³)	24-Hr Criteria (µg/m ³)	Comments
5/01/2023	15.0	12.5	15.0	50	
11/01/2023	11.4		13.2	50	
17/01/2023	10.5		12.3	50	
23/01/2023	9.6		11.6	50	
29/01/2023	16.1		12.5	50	
4/02/2023	11.5	14.9	12.4	50	
10/02/2023	12.8		12.4	50	
16/02/2023	23.6		13.8	50	
22/02/2023	12.0		13.6	50	
28/02/2023	14.4		13.7	50	
6/03/2023	27.3	20.7	14.9	50	
12/03/2023	23.6		15.7	50	
18/03/2023	27.5		16.6	50	
24/03/2023	12.4		16.3	50	
30/03/2023	12.8		16.0	50	
05/04/2023	12.2	10.9	15.8	50	
11/04/2023	10.0		15.5	50	
17/04/2023	11.8		15.3	50	
23/04/2023	9.3		14.9	50	
29/04/2023	11.4		14.8	50	
05/05/2023	11.2	13.1	14.6	50	
11/05/2023	14.3		14.6	50	
17/05/2023	11.2		14.4	50	Short run due to power outage (1,365 minutes)
23/05/2023	21.0		14.7	50	
29/05/2023	8.0		14.4	50	
04/06/2023	13.2	11.4	14.4	50	
10/06/2023	6.9		14.1	50	
16/06/2023	13.3		14.1	50	
22/06/2023	16.0		14.1	50	
28/06/2023	7.5		13.9	50	
04/07/2023	9.4	11.6	13.8	50	
10/07/2023	12.9		13.8	50	
16/07/2023	9.3		13.6	50	
22/07/2023	9.8		13.5	50	
28/07/2023	16.8		13.6	50	

Minimum	6.9
Maximum	27.5
Average	13.6
Standard Deviation	5.2
24-hr Criteria	50
Number of Exceedences	0
Annual Average Criteria	25/30*
Annual Average Criteria Exceeded	No
*See explanation on previous page.	



Water

Water Monitoring

EPL Point 4 - Monthly Monitoring

Date	Time	Sampled By	Date Results Received		pH	EC	TSS	Oil & Grease	Comments
				Units	pH Units	µS/cm	mg/L	mg/L	
				EPL Criterion*	6.5-8.5	NA	<50	10	
				ANZECC Water Quality Limits	6.5-8.5	125-2200	<50	-	
17/07/2023	11:15am	Metromix - CD	21/07/2023		8.0	1890	30	<5	

EPL Point 5 - Monitoring Daily During Discharge

Date	Time	Sampled By	Date Results Received		pH	EC	TSS	Oil & Grease	Comments
				Units	pH Units	µS/cm	mg/L	mg/L	
				EPL Criterion*	6.5-8.5	NA	<50	10	
				ANZECC Water Quality Limits	6.5-8.5	125-2200	<50	-	
No discharge occurred at this location and therefore no monitoring was required									

EPL Point 6 - Monthly Monitoring

Date	Time	Sampled By	Date Results Received		pH	EC	TSS	Oil & Grease	Comments
				Units	pH Units	µS/cm	mg/L	mg/L	
				EPL Criterion*	6.5-8.5	NA	<50	10	
				ANZECC Water Quality Limits	6.5-8.5	125-2200	<50	-	
No discharge occurred at this location and therefore no monitoring was required									

EPL Point 7 - Monthly Monitoring

Date	Time	Sampled By	Date Results Received		pH	EC	TSS	Oil & Grease	Comments
				Units	pH Units	µS/cm	mg/L	mg/L	
				EPL Criterion*	6.5-8.5	NA	<50	10	
				ANZECC Water Quality Limits	6.5-8.5	125-2200	<50	-	
No discharge occurred at this location and therefore no monitoring was required									

Flow Meter Records

EPA Identified Point	Location	Description	Sample Period	Daily Average Flow ML	Monthly Total Flow ML
4	Adit Dam	Adit Dam to Creek (off site)	01/07/2023 to 01/08/2023	0.23	7.2
5	Dam B	Discharge from Dam B (from Quarry)	01/07/2023 to 01/08/2023	0.00	0.0
4	Adit Dam	Water pumped from Adit Dam to Dam G (processing use)	01/07/2023 to 01/08/2023	3.12	96.7

Comments

All water monitoring results remained within the approved criteria levels during the monitoring period.

Water - Year to Date

EPL Point 4 : Monthly Monitoring

	pH	EC	TSS	Oil & Grease	Comments
Units	pH Units	µS/cm	mg/L	mg/L	-
EPL Criterion*	6.5-8.5	NA	<50	10	-
ANZECC Water Quality Limits	6.5-8.5	125-2200	<50	-	-
January	7.26	2090	<5	6	-
February	7.15	1740	<5	<5	-
March	7.5	1710	<5	<5	-
April	7.2	1760	14	<5	-
May	7.3	1840	<5	<5	-
June	7.4	1980	<5	<5	-
July	8.0	1890	30	<5	-
August					
September					
October					
November					
December					

EPL Point 5 : Monitoring During Discharge

	pH	EC	TSS	Oil & Grease	Comments
Units	pH Units	µS/cm	mg/L	mg/L	-
EPL Criterion*	6.5-8.5	NA	<50	10	-
ANZECC Water Quality Limits	6.5-8.5	125-2200	<50	-	-
23 February	7.2	332	95	<5	TSS exceedance due to significant rainfall
1 March	6.8	642	12	<5	-
3 March	6.8	634	<5	<5	-
3 April	7.0	649	18	<5	-
1 May	7.0	630	<5	<5	-

Flow Meter Records

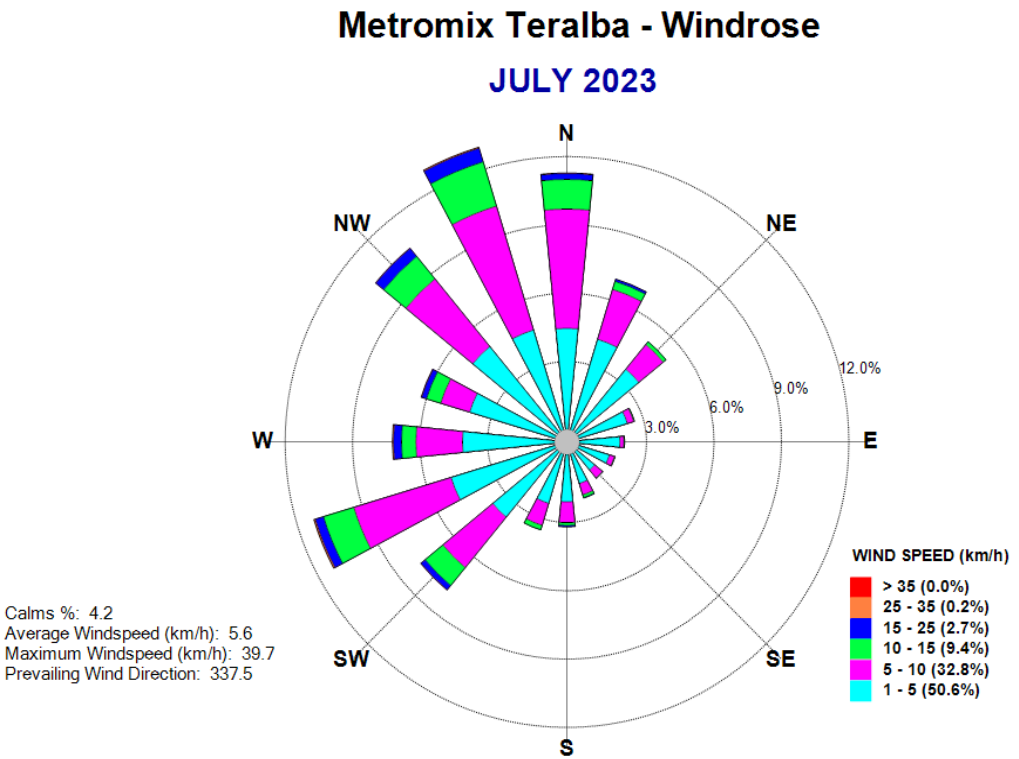
EPA Identifier	Location	Description	Date	Monthly
4	Adit Dam	Water pumped from Adit Dam to Dam G (processing use)	03/01/2023 - 02/02/2023	0.2
			02/02/2023 - 01/03/2023	98.9
			01/03/2023 - 03/04/2023	84.8
			03/04/2023 - 01/05/2023	80.5
			01/05/2023 - 01/06/2023	114.2
			01/06/2023 - 01/07/2023	102.0
EPA Identifier	Location	Description	Date	Monthly
5	Dam B	Discharge from Dam B (from Quarry)	03/01/2023 - 02/02/2023	0.0
			02/02/2023 - 01/03/2023	5.1
			01/03/2023 - 03/04/2023	3.7
			03/04/2023 - 01/05/2023	1.7
			01/05/2023 - 01/06/2023	0.1
			01/06/2023 - 01/07/2023	0.0
EPA Identifier	Location	Description	Date	Monthly
4	Adit Dam	Adit Dam to Creek (off site)	03/01/2023 - 02/02/2023	20.3
			02/02/2023 - 01/03/2023	37.6
			01/03/2023 - 03/04/2023	106.1
			03/04/2023 - 01/05/2023	71.1
			01/05/2023 - 01/06/2023	22.1
			01/06/2023 - 01/07/2023	11.8

Meteorological Conditions

Monitoring Location:Mid-Pit Entrance

Monitoring Frequency:Continuous

Windrose



Monthly Summary

Date	Mean Wind Direction (°)	Mean Wind Speed (km/h)	Daily Rainfall (mm)	Mean Sigma Theta	Max Temperature (°C) at 2m	Min Temperature (°C) at 2m
01/07/23	262	6.5	0.0	39.0	17.4	8.4
02/07/23	217	5.3	0.0	29.7	17.6	9.8
03/07/23	197	2.5	0.0	28.7	16.0	9.6
04/07/23	130	3.2	7.0	22.5	15.6	11.4
05/07/23	246	7.0	0.2	41.8	20.2	12.0
06/07/23	216	5.7	0.0	42.4	16.2	11.0
07/07/23	241	8.6	0.0	46.6	17.6	10.4
08/07/23	250	10.0	0.0	51.5	17.8	9.8
09/07/23	243	9.3	0.0	39.1	18.8	11.0
10/07/23	254	6.0	0.0	37.0	19.2	9.7
11/07/23	267	4.5	0.0	26.4	17.6	6.6
12/07/23	158	3.7	0.0	20.9	19.8	6.4
13/07/23	193	6.3	0.0	22.5	20.8	8.2
14/07/23	195	7.9	0.0	32.3	21.6	11.2
15/07/23	204	6.4	0.0	34.2	22.8	9.4
16/07/23	203	3.9	0.0	36.8	18.8	13.0
17/07/23	168	2.8	5.6	24.5	17.2	11.8
18/07/23	220	5.2	0.2	21.9	21.0	9.4
19/07/23	228	6.6	0.0	26.7	16.2	8.0
20/07/23	251	5.8	0.0	28.1	17.6	7.0
21/07/23	239	5.4	1.4	30.4	18.0	9.0
22/07/23	220	6.9	0.0	26.0	17.2	7.8
23/07/23	205	4.9	16.6	31.8	17.8	7.6
24/07/23	229	4.7	8.2	32.1	17.2	10.6
25/07/23	193	2.8	0.2	31.9	18.6	9.2
26/07/23	190	3.5	0.0	23.1	20.0	9.6
27/07/23	174	4.5	0.0	21.5	20.4	9.4
28/07/23	223	7.0	0.0	31.4	23.0	9.8
29/07/23	204	3.8	0.0	31.2	24.8	14.4
30/07/23	261	7.2	0.0	35.6	24.8	16.0
31/07/23	215	5.5	0.0	29.6	23.0	11.8

Meteorological Conditions - Year to Date

Monitored Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Total Rainfall (mm)	120.0	217.0	169.4	131.8	37.8	8.6	39.4						
Average Minimum Temperature (°C) at 2m	14.8	16.2	13.2	10.1	6.0	2.4	6.4						
Average Maximum Temperature (°C) at 2m	35.6	37.6	38.4	26.8	23.6	24.6	24.8						
Average Minimum Temperature (°C) at 10m	14.9	16.7	13.7	10.7	7.0	2.9	7.1						
Average Maximum Temperature (°C) at 10m	34.9	36.4	37.7	26.2	23.1	23.6	24.4						
Average Sigma Theta	33.6	31.9	30.7	29.5	29.9	31.1	31.5						
Average Solar Radiation (W/m ²)	215.6	222.6	171.3	130.1	116.0	94.5	101.2						
Average Relative Humidity (%)	73.0	65.0	67.0	70.0	60.0	60.0	62.0						

Blasting

Monitoring Frequency: Each Blast
Blast Monitoring Completed By: MAXAM

Shot #	Day	Month	Time	Location	Location 1		Location 2		Location 3		Comments
					Overpressure	Vibration	Overpressure	Vibration	Overpressure	Vibration	
					dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	
1	19	January	13:39:30	Stage 1C	104.7	0.60	100.8	0.06	NM	NM	Nil Trigger on monitor at bottom wheel wash
2	8	February	13:52:29	Stage 2B-3	104.9	0.37	NT	NT	NM	NM	
3	22	February	12:03:50	Stage 2B-2	104.7	0.30	101.7	0.14	NM	NM	
4	3	March	10:44:46	Stage 2B-3	108.0	0.28	102.7	0.16	NM	NM	
5	24	March	11:35:01	Stage 1C	104.7	0.23	108.4	0.79	NM	NM	
6	31	March	14:51:00	Stage 2B-1	NT	0.28	NT	0.28	NM	NM	
7	26	April	15:06:42	Stage 1C	NT	NT	103.9	0.48	NM	NM	
8	11	May	12:54:29	Stage 2B-1	NT	NT	103.7	0.06	NM	NM	
9	23	May	14:48:41	Stage 1C	105.5	0.16	98.5	0.06	NM	NM	
10	2	June	10:25:49	Stage 2B-2	101.6	0.16	96.8	0.06	NM	NM	
11	14	June	12:11:36	Stage 2B-2	112.3	0.31	108.6	0.06	NM	NM	
12	23	June	11:53:00	Stage 1C	108.6	0.29	104.2	0.06	NM	NM	
13	7	July	11:31:00	Stage 2B-3	107.2	0.3	106.3	0.06	NM	NM	Shots #13 and #14 occurred simultaneously
14	7	July	11:31:00	Stage 1C	107.2	0.3	106.3	0.06	NM	NM	Shots #13 and #14 occurred simultaneously
15	19	July	11:29:00	Stage 2B-1	108.4	0.29	106.3	0.09	NM	NM	

NT Not Triggered
NM Not Monitored

Blasting Criteria

Parameter	Units of Measure	Limit	
		95% of blasts per year	100% of blasts
Airblast Overpressure (Linear Peak)	decibels (dBL)	115	120
Ground Vibration (Peak Particle Velocity)	millimeters per second	5	10

Comments

Three blasting events occurred during the monitoring period. All blast monitoring results were within the approved criteria.

Waste Management**Waste Removal Summary**

Month	January	February	March	April	May	June	July	August	September	October	November	December
Items	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity
General Waste Bin (10m ³)	-	-	-	-	-	-	-					
General Waste Bin (4.5m ³)	-	-	-	-	-	-	-					
General Waste Bin (6m ³)	-	-	-	-	-	-	-					
General Waste Bin (20m ³)	1	1	1	1	-	1	1					
Paper & Cardboard Bin (3m ³)	2	1	-	1	1	2	1					
Shredded Paper Bin (240L)	-	-	-	-	-	-	1					
Co Mingled Recycling (2 x 240 L)	4	4	4	4	4	4	4					
Tonner Cartridges	-	-	-	-	-	-	-					
Waste Oil (L)	-	-	-	-	-	-	-					
Scrap Steel (t)	-	4.12	-	2.48	-	3.58	3.66					
Timber (m ³)	-	-	-	-	-	-	-					
Engine Coolant (L)	-	-	-	-	-	-	-					
Oil Filters (240L bin)	-	-	-	6	-	-	-					
Batteries	-	-	-	-	-	-	-					
Oily Rags (240L bin)	-	-	-	-	-	-	-					
Aerosols (120L bin)	-	-	-	-	-	-	-					
Tyres	-	-	-	-	-	-	-					
Other	-	-	-	-	-	-	-					
Oily Water (L)	-	-	-	-	-	-	-					
Grease Waste (L)	-	-	-	-	-	-	-					