



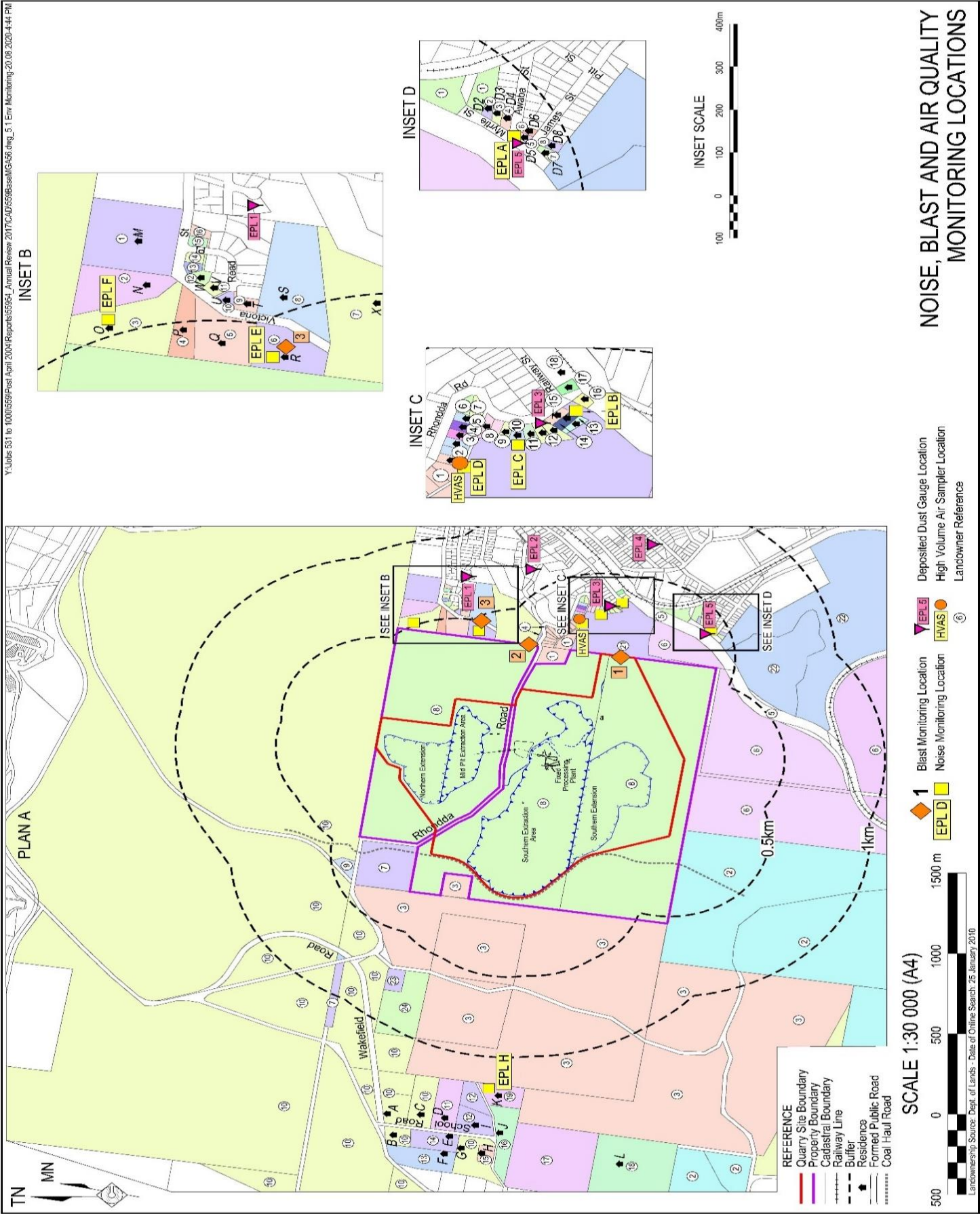
# Teralba Quarry Environmental Monitoring Summary

September 2023

<b>Environmental Protection Licence (EPL):</b>	536
<b>Licensee:</b>	Metromix Pty Limited
<b>Licensee Address:</b>	PO Box 1295 Parramatta, NSW 2124
<b>Premises:</b>	Metromix Pty Limited Teralba Quarry Rhondda Road Teralba, NSW 2284
<b>Licensee Website:</b>	<a href="https://www.metromix.com.au/">https://www.metromix.com.au/</a>
<b>Licensee Website - Monitoring Results:</b>	<a href="https://www.metromix.com.au/resources/#quarry">https://www.metromix.com.au/resources/#quarry</a>
<b>EPA Public Register:</b>	<a href="https://www.epa.nsw.gov.au/licensing-and-regulation/public-registers">https://www.epa.nsw.gov.au/licensing-and-regulation/public-registers</a>
<b>Prepared by:</b>	R. W. Corkery & Co.
<b>Sample Period:</b>	September 2023
<b>Date Last Data Received</b>	12 October 2023
<b>Date of Report</b>	17 October 2023

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Deposited Dust

Sample Period Start: 1/09/2023  
Sample Period End: 3/10/2023  
Sample Frequency: 30 ± 2 days  
Sample Collected By: Metromix - CD  
Date Received by Laboratory: 3/10/2023  
Date Results Received by Metromix: 12/10/2023

EPA Identification No.	Location	Criteria (g/m <sup>2</sup> /month)	Insoluble Solids (g/m <sup>2</sup> /month)	Ash Fraction (g/m <sup>2</sup> /month)	% Ash Fraction
1	Hillside Crescent	4.0	0.2	0.2	100
8	Rodgers Street	4.0	3.0	0.2	7
9	Rhondda Road	4.0	1.0	0.7	70
11	Myrtle Street	4.0	0.4	0.3	75
23	York Street	4.0	0.4	0.1	25

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 <sup>2</sup> /month	g/m <sup>2</sup> /month		g/m <sup>2</sup> /month	g/m <sup>2</sup> /month		g/m <sup>2</sup> /month	g/m <sup>2</sup> /month		g/m <sup>2</sup> /month	g/m <sup>2</sup> /month		g/m <sup>2</sup> /month	g/m <sup>2</sup> /month	
<b>EPA Approved Level</b>	<b>4.0</b>			<b>4.0</b>			<b>4.0</b>			<b>4.0</b>			<b>4.0</b>		
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	0.5	0.2	40	0.6	0.2	33	0.4	0.4	100	0.4	0.1	25	0.7	0.3	43
September	1.0	0.7	70.0	0.4	0.3	75.0	0.2	0.2	100.0	0.3	0.2	66.7	0.4	0.1	25.0
October															
November															
December															
<b>Annual Average</b>	<b>1.3</b>	1.0	68.1	<b>0.5</b>	0.3	55.5	<b>0.3</b>	0.2	69.0	<b>0.3</b>	0.2	57.9	<b>0.6</b>	0.3	52.2
<b>Annual Maximum</b>	<b>5.2</b>	4.5	100.0	<b>1.3</b>	0.8	100.0	<b>0.7</b>	0.4	100.0	<b>0.8</b>	0.5	100.0	<b>1.1</b>	0.7	100.0
<b>Annual Minimum</b>	<b>0.2</b>	0.2	40.0	<b>0.3</b>	0.1	25.0	<b>0.1</b>	0.1	20.0	<b>0.1</b>	0.1	25.0	<b>0.1</b>	0.1	25.0

Particulate Matter (PM<sub>10</sub>)

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

Date Sample Taken (24-hr)	Collected by	Date Results Received	PM <sub>10</sub> µg/m <sup>3</sup>	Monthly Average Criteria (µg/m <sup>3</sup> )	Annual Average Criteria (µg/m <sup>3</sup> )
02/09/2023	CBased - AH, TD	15/09/2023	10.2	50	
08/09/2023	CBased - TD	18/09/2023	6.8	50	
14/09/2023	CBased - AH	22/09/2023	16.8	50	
20/09/2023	CBased - AH, TD	28/09/2023	39.0	50	
26/09/2023	CBased - TD	4/10/2023	20.7	50	
Monthly Average			18.7		25/30*
*Project Approval (PA 10_0183) outlines the annual average PM <sub>10</sub> criteria to be 30µg/m <sup>3</sup> . 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 <sub>10</sub> criteria to be 25µg/m <sup>3</sup> . Metromix has considered both criteria for its review of particulate matter monitoring.					

Comments

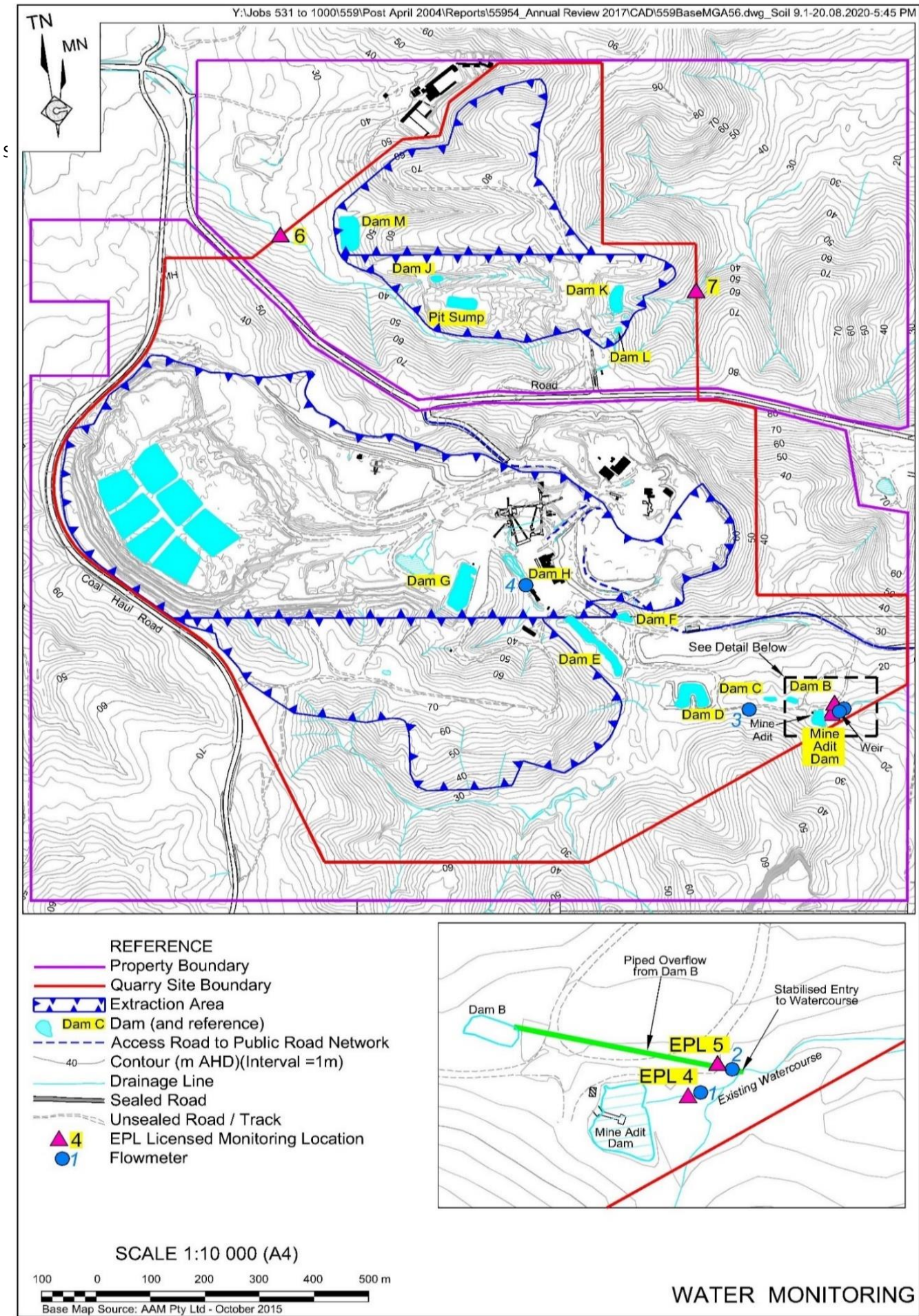
The monthly average of PM<sub>10</sub> results remained below the approved criteria for the sample period.

Particulate Matter (PM<sub>10</sub>) - Year to Date

Date	PM <sub>10</sub> (µg/m <sup>3</sup> )	Monthly Average (µg/m <sup>3</sup> )	Year to Date Average (µg/m <sup>3</sup> )	24-Hr Criteria (µg/m <sup>3</sup> )	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	
03/08/2023	12.9	9.7	13.6	50	
09/08/2023	8.4		13.4	50	
15/08/2023	5.9		13.2	50	
21/08/2023	13.4		13.2	50	
27/08/2023	8.0		13.1	50	
02/09/2023	10.2	18.7	13.0	50	
08/09/2023	6.8		12.9	50	
14/09/2023	16.8		13.0	50	
20/09/2023	39.0		13.6	50	
26/09/2023	20.7		13.7	50	

Minimum	5.9
Maximum	39.0
Average	13.7
Standard Deviation	6.4
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	-	
3/10/2023	07:30am	Metromix - AL	10/10/2023		7.3	2170	8	<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)	01/09/2023 - 01/10/2023	0.00	0.1
5	Dam B	Discharge from Dam B (from Quarry)	01/09/2023 - 01/10/2023	0.00	0.0
4	Adit Dam	Water pumped from Adit Dam to Dam G (processing use)	01/09/2023 - 01/10/2023	3.00	90.0

**Comments**

All water monitoring results remained within the approved criteria levels during the monitoring period. It is noted that the daily average flow for EPA Identified Point 4 (Adit Dam to Creek) was 0.003ML, however this number has been rounded down for consistency.



**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	7.3	2090	<5	6	-
February	7.2	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	7.3	1860	16	<5	-
September	7.3	2170	8	<5	-
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

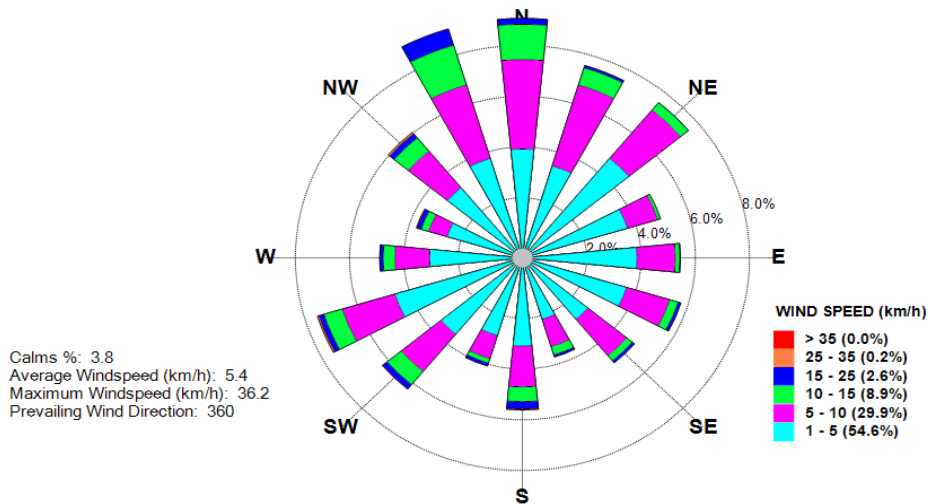
EPA Identifier	Location	Description	Date	Monthly
4	Adit Dam	Water pumped from Adit Dam to Dam G (processing use)	03/01/2023 - 02/02/2023	0.2
			02/02/2023 - 01/03/2023	98.9
			01/03/2023 - 03/04/2023	84.8
			03/04/2023 - 01/05/2023	80.5
			01/05/2023 - 01/06/2023	114.2
			01/06/2023 - 01/07/2023	102.0
			01/07/2023 - 01/08/2023	96.7
			01/08/2023 - 01/09/2023	90.8
			01/09/2023 - 01/10/2023	90.0
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
			01/07/2023 - 01/08/2023	0.0
			01/08/2023 - 01/09/2023	0.0
			01/09/2023 - 01/10/2023	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
			01/07/2023 - 01/08/2023	7.2
			01/08/2023 - 01/09/2023	10.4
			01/09/2023 - 01/10/2023	0.1

Meteorological Conditions

Monitoring Location: Mid-Pit Entrance  
Monitoring Frequency: Continuous

Windrose

Metromix Teralba - Windrose  
SEPTEMBER 2023



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
01/09/23	218	6.6	0.4	31.8	18.4	10.2
02/09/23	211	6.2	0.0	30.8	18.4	10.4
03/09/23	178	3.8	0.0	27.1	19.6	9.6
04/09/23	146	4.0	0.0	27.0	22.4	8.6
05/09/23	217	7.5	0.0	26.3	26.6	13.8
06/09/23	161	5.2	0.0	27.7	23.6	11.0
07/09/23	127	5.0	0.0	26.1	28.3	10.8
08/09/23	219	9.8	6.6	31.6	23.4	11.2
09/09/23	217	4.9	0.0	35.8	19.4	7.2
10/09/23	188	3.8	0.0	28.9	19.6	7.0
11/09/23	191	3.7	0.0	24.3	20.6	8.6
12/09/23	225	3.4	0.0	23.8	21.6	9.9
13/09/23	139	4.1	0.0	24.5	24.8	10.2
14/09/23	160	3.4	0.0	25.7	24.8	10.2
15/09/23	107	5.6	0.0	22.4	29.4	9.8
16/09/23	242	8.5	0.0	25.5	33.2	16.8
17/09/23	217	5.4	0.0	34.6	33.7	19.8
18/09/23	145	5.2	0.0	26.1	35.2	13.8
19/09/23	204	8.7	0.0	32.9	34.2	21.6
20/09/23	231	10.4	0.0	39.3	33.4	21.6
21/09/23	183	7.7	1.6	40.3	24.8	12.4
22/09/23	195	5.4	0.6	37.8	19.7	10.8
23/09/23	152	3.5	0.0	28.6	18.8	10.4
24/09/23	147	3.6	0.0	27.5	21.6	11.0
25/09/23	159	4.3	0.0	24.0	26.8	10.4
26/09/23	189	4.9	0.0	33.5	24.8	12.4
27/09/23	155	3.9	0.0	34.3	24.2	15.2
28/09/23	140	3.8	9.4	26.0	22.2	15.0
29/09/23	196	5.4	0.0	28.6	31.4	13.2
30/09/23	131	4.7	0.0	29.2	28.8	15.6

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	49.0	18.6				
Average Minimum Temperature (°C) at 2m	14.8	16.2	13.2	10.1	6.0	2.4	6.4	6.8	7.0				
Average Maximum Temperature (°C) at 2m	35.6	37.6	38.4	26.8	23.6	24.6	24.8	26.8	35.2				
Average Minimum Temperature (°C) at 10m	14.9	16.7	13.7	10.7	7.0	2.9	7.1	7.4	7.5				
Average Maximum Temperature (°C) at 10m	34.9	36.4	37.7	26.2	23.1	23.6	24.4	25.9	34.6				
Average Sigma Theta	33.6	31.9	30.7	29.5	29.9	31.1	31.5	29.8	29.4				
Average Solar Radiation (W/m <sup>2</sup> )	215.6	222.6	171.3	130.1	116.0	94.5	101.2	129.1	178.0				
Average Relative Humidity (%)	73.0	65.0	67.0	70.0	60.0	60.0	62.0	67.0	55.0				

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	0.30	106.3	0.06	NM	NM	Shots #13 and #14 occurred simultaneously
14	7	July	11:31:00	Stage 1C	107.2	0.30	106.3	0.06	NM	NM	
15	19	July	11:29:00	Stage 2B-1	108.4	0.29	106.3	0.09	NM	NM	
16	2	August	11:31:00	Stage 1C	107.8	0.37	112.0	0.48	NM	NM	
17	22	August	12:15:00	Stage 1C	106.7	0.45	101.8	0.13	NM	NM	
18	20	September	13:00:45	Stage 2B1	110.8	0.34	106	0.06	NM	NM	
19	26	September	11:41:39	Stage 2B3	107.2	0.36	107	0.06	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

Two 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 <sup>3</sup> )	-	-	-	-	-	-	-	-	-			
General Waste Bin (4.5m <sup>3</sup> )	-	-	-	-	-	-	-	-	-			
General Waste Bin (6m <sup>3</sup> )	-	-	-	-	-	-	-	-	-			
General Waste Bin (20m <sup>3</sup> )	1	1	1	1	-	1	1	1	1			
Paper & Cardboard Bin (3m <sup>3</sup> )	2	1	-	1	1	2	1	2	1			
Shredded Paper Bin (240L)	-	-	-	-	-	-	1		-			
Co Mingled Recycling (2 x 240 L)	4	4	4	4	4	4	4	4	4			
Tonner Cartridges	-	-	-	-	-	-	-	-	-			
Waste Oil (L)	-	-	-	-	-	-	-	-	-			
Scrap Steel (t)	-	4.12	-	2.48	-	3.58	3.66	3.66	-			
Timber (m <sup>3</sup> )	-	-	-	-	-	-	-	-	-			
Engine Coolant (L)	-	-	-	-	-	-	-	-	-			
Oil Filters (240L bin)	-	-	-	6	-	-	-	3	-			
Batteries	-	-	-	-	-	-	-	-	-			
Oily Rags (240L bin)	-	-	-	-	-	-	-	-	-			
Aerosols (120L bin)	-	-	-	-	-	-	-	-	-			
Tyres	-	-	-	-	-	-	-	-	-			
Other	-	-	-	-	-	-	-	16.4	-			
Oily Water (L)	-	-	-	-	-	-	-	3.42	-			
Grease Waste (L)	-	-	-	-	-	-	-	-	-			