

Teralba Quarry Environmental Monitoring Summary

October 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

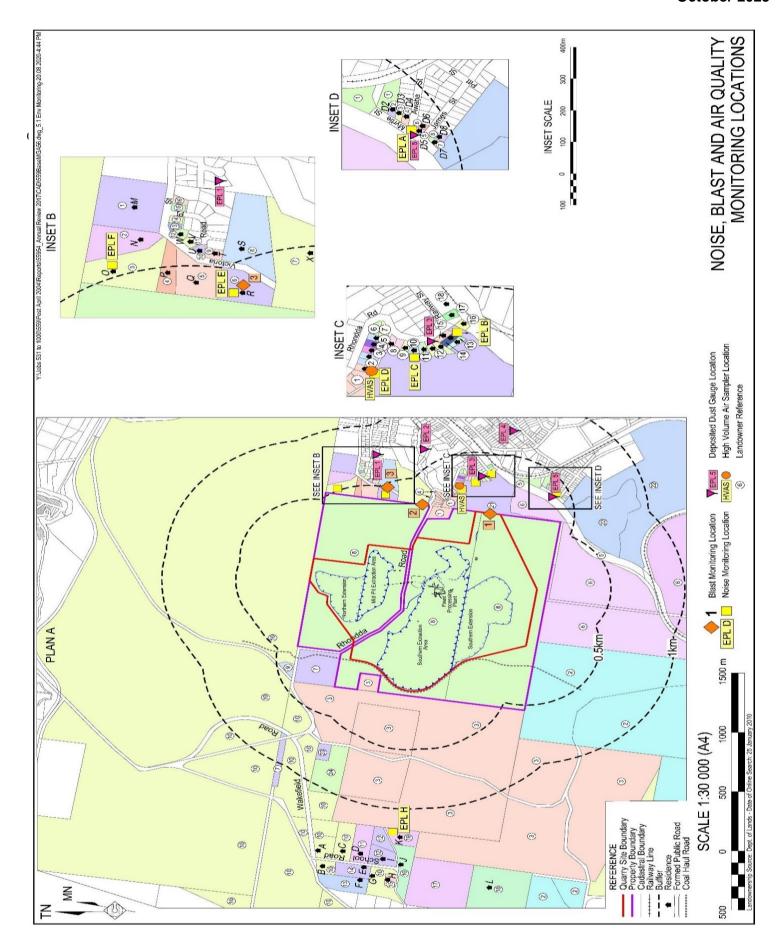
Prepared by: R. W. Corkery & Co.

Sample Period: October 2023

Date Last Data Received13 November 2023Date of Report14 November 2023

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Deposited Dust

EPA Identification No.	Location	Criteria (g/m²/month)	Insoluble Solids (g/m²/month)	Ash Fraction (g/m²/month)	% Ash Fraction
1	Hillside Crescent	4.0	0.6	0.1	17
8	Rodgers Street	4.0	0.6	0.3	50
9	Rhondda Road	4.0	0.9	0.5	56
11	Myrtle Street	4.0	1.0	0.5	50
23	York Street	4.0	1.6	0.7	44

Comments

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

Deposited Dust - Year to Date

	Rho	ondda Road		My	yrtle Street		Hills	ide Crescent		Roo	dgers Street		Υ	ork Street	
	Total			Total			Total			Total			Total		
	Insoluble			Insoluble			Insoluble			Insoluble			Insoluble		
	Solids	Ash Fraction	% Ash												
Units	g/m²/month	g/m²/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	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	0.4	0.3	75	0.2	0.2	100	0.3	0.2	67	0.4	0.1	25
October	0.9	0.5	56	1.0	0.5	50	0.6	0.1	17	0.6	0.3	50	1.6	0.7	44
November															
December							<u> </u>								
Annual Average	1.2	0.9	67	0.6	0.3	55	0.4	0.2	64	0.4	0.2	57	0.7	0.3	51
Annual Maximum	5.2	4.5	100	1.3	0.8	100	0.7	0.4	100	0.8	0.5	100	1.6	0.7	100
Annual Minimum	0.2	0.2	40	0.3	0.1	25	0.1	0.1	17	0.1	0.1	25	0.1	0.1	25

Particulate Matter (PM₁₀)

Sample Location: EPA 3 - Rodgers Street

Sample Frequency: 6 days

Date Sample Taken (24-hr)	Collected by	Date Results Received	PM₁₀ μg/m³	Monthly Average Criteria (μg/m³)	Annual Average Criteria (μg/m³)
02/10/2023	CBased - AH	10/10/2023	35.5	50	
08/10/2023	CBased - TD	16/10/2023	5.4	50	
14/10/2023	CBased - TD	25/10/2023	6.9	50	
20/10/2023	CBased - TD	31/10/2023	16.9	50	
26/10/2023	CBased - LK	06/11/2023	7.5	50	
Monthly Average			14.4		25/30*

*Project Approval (PA 10_0183) outlines the annual average PM₁₀ criteria to be 30μg/m³. 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 *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*. The most up to date version of this guideline was published in 2022 and outlines the annual average PM₁₀ criteria to be 25μg/m³. Metromix has considered both criteria for its review of particulate matter monitoring.

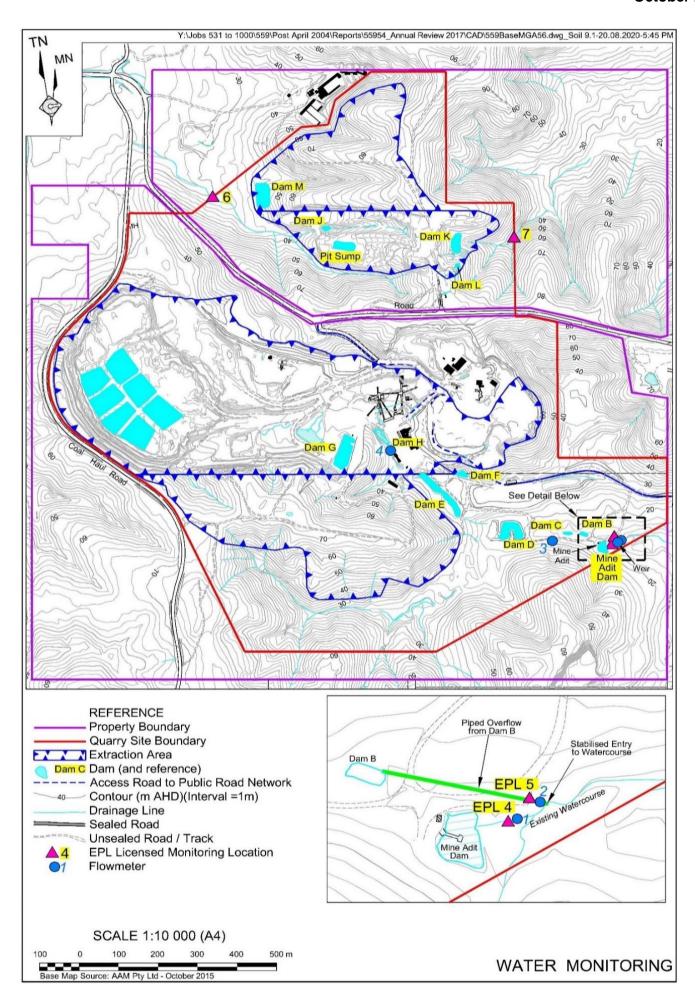
Comments

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

Particulate Matter (PM_{10}) - Year to Date

		Monthly			
	PM ₁₀	Average	Year to Date	24-Hr Criteria	
Date	(µg/m³)	(µg/m³)	Average (µg/m³)	(µg/m³)	Comments
05/01/2023	15.0	(۳9,)	15.0	50	- Commonto
11/01/2023	11.4		13.2	50	
17/01/2023	10.5	12.5	12.3	50	
23/01/2023	9.6	0	11.6	50	
29/01/2023	16.1		12.5	50	
04/02/2023	11.5		12.4	50	
10/02/2023	12.8		12.4	50	
16/02/2023	23.6	14.9	13.8	50	
22/02/2023	12.0	14.5	13.6	50	
28/02/2023	14.4		13.7	50	
06/03/2023	27.3		14.9	50	
12/03/2023	23.6		15.7	50	
18/03/2023		20.7		50	
24/03/2023	27.5	20.7	16.6	50	
	12.4		16.3	50	
30/03/2023	12.8		16.0		
05/04/2023	12.2		15.8	50	
11/04/2023	10.0	10.0	15.5	50	
17/04/2023	11.8	10.9	15.3	50	
23/04/2023	9.3		14.9	50	
29/04/2023	11.4		14.8	50	
05/05/2023	11.2		14.6	50	
11/05/2023	14.3	40.4	14.6	50	0
17/05/2023	11.2	13.1	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		14.4	50	
10/06/2023	6.9	44.4	14.1	50	
16/06/2023	13.3	11.4	14.1	50	
22/06/2023	16.0		14.1	50	
28/06/2023	7.5		13.9	50	
04/07/2023	9.4		13.8	50	
10/07/2023	12.9	44.0	13.8	50	
16/07/2023	9.3	11.6	13.6	50	
22/07/2023	9.8		13.5	50	
28/07/2023	16.8		13.6	50	
03/08/2023	12.9		13.6	50	
09/08/2023	8.4	0 -	13.4	50	
15/08/2023	5.9	9.7	13.2	50	
21/08/2023	13.4		13.2	50	
27/08/2023	8.0		13.1	50	
02/09/2023	10.2		13.0	50	
08/09/2023	6.8		12.9	50	
14/09/2023	16.8	18.7	13.0	50	
20/09/2023	39.0		13.6	50	
26/09/2023	20.7		13.7	50	
02/10/2023	35.5		14.2	50	
08/10/2023	5.4		14.0	50	
14/10/2023	6.9	14.4	13.9	50	
20/10/2023	16.9		13.9	50	
26/10/2023	7.5		13.8	50	

Minimum	5.4						
Maximum	39.0						
Average	13.8						
Standard Deviation	7.1						
24-hr Criteria	50						
Number of Exceedences	0						
Annual Average Criteria	25/30*						
Annual Average Criteria	No						
Exceeded							
*See explanation on previous page.							



Water

Water Monitoring

EPL Point 4 - Monthly Monitoring

					рН	EC	TSS	Oil & Grease	Comments
				Units	pH Units	μS/cm	mg/L	mg/L	
			Date Results	EPL Criterion*	6.5-8.5	NA	<50	10	
Date	Time	Sampled By	Received	ANZECC Water Quality Limits	6.5-8.5	125-2200	<50	-	
06/11/2023	07:30am	Metromix - CD	13/11/2023		7.4	2050	<5	<5	

EPL Point 5 - Monitoring Daily During Discharge

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

EPL Point 6 - Monthly Monitoring

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

EPL Point 7 - Monthly Monitoring

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

Flow Meter Records

EPA				Daily Average	Monthly Total
Identified			Sample Period	Flow	Flow
Point	Location	Description		ML	ML
4	Adit Dam	Adit Dam to Creek (off site)	01/10/2023 - 01/11/2023	0.04	1.4
5	Dam B	Discharge from Dam B (from Quarry)	01/10/2023 - 01/11/2023	0.00	0.0
4	Adit Dam	Water pumped from Adit Dam to Dam G (processing use)	01/10/2023 - 01/11/2023	2.89	89.5

Comments

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

Water - Year to Date

EPL Point 4: Monthly Monitoring

	pН	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	7.4	2050	<5	<5	-
November					
December					

EPL Point 5: Monitoring During Discharge

	рН	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	03/01/2023 - 02/02/2023	0.2
		(processing use)	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
			01/10/2023 - 01/11/2023	89.5

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
			01/10/2023 - 01/11/2023	0.0

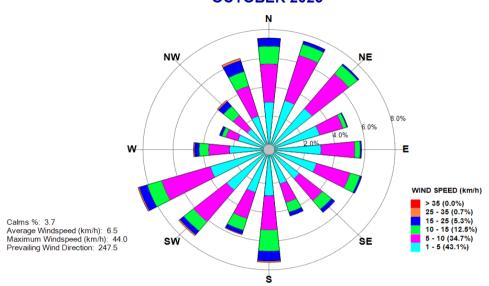
EPA Identifier	Location	Description	Date	Monthly
4	Adit Dam	Adit Dam to Creek (off site)	03/01/2023 - 02/02/2023	20.3
			02/02/2023 - 01/03/2023	37.6
			01/03/2023 - 03/04/2023	106.1
			03/04/2023 - 01/05/2023	71.1
			01/05/2023 - 01/06/2023	22.1
			01/06/2023 - 01/07/2023	11.8
			01/07/2023 - 01/08/2023	7.2
			01/08/2023 - 01/09/2023	10.4
			01/09/2023 - 01/10/2023	0.1
			01/10/2023 - 01/11/2023	1.4

Meteorological Conditions

Monitoring Location: Mid-Pit Entrance
Monitoring Frequency: Continuous

Windrose

Metromix Teralba - Windrose OCTOBER 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
01/10/23	198	10.4	0.0	32.3	35.2	18.2
02/10/23	154	5.7	0.0	32.7	24.0	15.8
03/10/23	120	6.7	0.0	26.9	36.4	14.8
04/10/23	154	9.0	7.8	33.0	30.4	11.4
05/10/23	249	12.5	0.0	33.5	23.2	12.2
06/10/23	194	6.1	6.6	34.4	22.0	10.4
07/10/23	191	6.3	2.0	38.6	19.4	11.0
08/10/23	164	4.4	0.0	30.5	21.8	11.2
09/10/23	140	4.1	0.0	26.9	26.6	10.0
10/10/23	165	4.9	0.0	35.1	23.6	13.8
11/10/23	125	4.0	0.0	32.6	25.6	15.6
12/10/23	201	8.2	0.0	28.5	33.8	12.9
13/10/23	211	6.8	0.0	31.8	24.4	13.0
14/10/23	262	6.2	0.0	33.3	30.6	12.8
15/10/23	198	5.1	0.0	29.9	27.2	15.0
16/10/23	230	8.5	0.0	28.9	29.6	13.4
17/10/23	203	9.3	2.6	31.3	21.4	11.4
18/10/23	175	5.3	0.2	37.4	21.8	12.0
19/10/23	124	4.3	0.0	36.1	23.6	14.8
20/10/23	128	4.2	0.0	30.1	27.8	13.0
21/10/23	132	4.2	0.0	29.6	29.1	15.2
22/10/23	161	5.9	0.0	33.7	33.6	17.2
23/10/23	175	4.8	0.0	31.2	26.4	14.8
24/10/23	166	4.7	0.0	27.4	33.2	13.0
25/10/23	144	7.2	4.2	34.2	25.0	15.8
26/10/23	183	8.5	35.2	36.2	15.8	11.4
27/10/23	179	8.1	16.2	37.7	19.4	11.4
28/10/23	167	4.9	0.2	31.3	20.4	10.4
29/10/23	92	6.1	0.0	25.4	26.8	12.2
30/10/23	150	9.5	0.0	23.6	33.6	13.2
31/10/23	185	7.1	0.0	35.1	32.0	17.0

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	75.0			
Average Minimum Temperature (°C) at 2m	14.8	16.2	13.2	10.1	6.0	2.4	6.4	6.8	7.0	10.0			
Average Maximum Temperature (°C) at 2m	35.6	37.6	38.4	26.8	23.6	24.6	24.8	26.8	35.2	36.4			
Average Minimum Temperature (°C) at 10m	14.9	16.7	13.7	10.7	7.0	2.9	7.1	7.4	7.5	10.8			
Average Maximum Temperature (°C) at 10m	34.9	36.4	37.7	26.2	23.1	23.6	24.4	25.9	34.6	35.4			
Average Sigma Theta	33.6	31.9	30.7	29.5	29.9	31.1	31.5	29.8	29.4	31.9			
Average Solar Radiation (W/m²)	215.6	222.6	171.3	130.1	116.0	94.5	101.2	129.1	178.0	220.3			
Average Relative Humidity (%)	73.0	65.0	67.0	70.0	60.0	60.0	62.0	67.0	55.0	56.0			

Blasting

Monitoring Frequency: Each Blast Blast Monitoring Completed By: MAXAM

					Locatio	n 1	Locatio	n 2	Locatio	n 3	
					Overpressure	Vibration	Overpressure	Vibration	Overpressure	Vibration	
Shot #	Day	Month	Time	Location	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	Comments
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	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	
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	
20	4	October	11:25:26	Stage 2B1	107.4	0.34	98.5	0.06	NM	NM	
21	13	October	10:49:22	Stage 3	104.7	0.3	97.7	0.09	NM	NM	
22	25	October	11:56:36	Stage 2B1	99.7	0.35	101.8	0.06	NM	NM	

NT Not Triggered NM Not Monitored

Blasting Criteria

		Lir	nit
Parameter	Units of Measure	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
Item	Quantity	Quantity	Quantity	Quantity								
General Waste Bin (10m ³)	-	-	-	-	-	-	-	-	-	-		
General Waste Bin (4.5m ³)	-	-	-	-	-	-	-	-	-	-		
General Waste Bin (6m3)	-	-	-	-	-	-	-	-	-	-		
General Waste Bin (20m ³)	1	1	1	1	-	1	1	1	1	1		
Paper & Cardboard Bin (3m ³)	2	1	-	1	1	2	1	2	1	-		
Shredded Paper Bin (240L)	-	-	-	-	-	-	1		-	2		
Co Mingled Recycling (2 x 240 L)	4	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 ³)	-	-	-	-	-	-	-	-	-	-		
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)	-	-	-	-	-	•	-	•	-	-		