Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia

ABN 32 053 909 470

T: +61 2 6542 9500
F: +61 2 6542 9599

bengalla.com.au

Bengalla Mine

State Significant Development 5170 Monthly Monitoring Data Summary

December 2022

Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia

ABN 32 053 909 470

T: +61 2 6542 9500
F: +61 2 6542 9599

bengalla.com.au

CONTENTS

1. INTRODUCTION 3
2. AIR QUALITY 4
3. NOISE 8
4. BLASTING 9

TABLES

Table 1. PM_{10} Monitoring Summary 4
Table 2. TSP Monitoring Summary 5
Table 3. Depositional Dust Monitoring Summary 7
Table 4. Noise – Bengalla Only[1] LAeq (15 minute) Monitoring Summary 8
Table 5. Blast Overpressure Monitoring Summary 10

Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia

ABN 32 053 909 470

T: +61 2 6542 9500
F: +61 2 6542 9599

bengalla.com.au

1. INTRODUCTION

State Significant Development (SSD) 5170 (as modified) requires the Bengalla Mining Company Pty Ltd (BMC) to make a comprehensive summary of the Bengalla Mine (Bengalla) monitoring results, reported in accordance with the specifications in any conditions of SSD-5170 (as modified), or any approved plans and programs, publicly available on its website. This document has been prepared in accordance with the Department of Planning and Environment (DPE) *Web-Based Reporting Guideline* (October 2015) to satisfy the above requirement.

This document provides a summary of environmental monitoring data sampled as prescribed by SSD-5170 (as modified) for December 2022 (Reporting Period). Monitoring data provided is as follows:

- Air quality, particulate matter less than 10 microns (PM_{10}), total suspended particulate (TSP) matter and depositional dust;
- Noise; and
- Blast overpressure and ground vibration.

Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia
ABN 32 053 909 470
T: +61 2 6542 9500
F: +61 2 6542 9599
bengalla.com.au

2. AIR QUALITY

The air quality monitoring program at Bengalla is undertaken in accordance with the requirements of SSD-5170 (as modified), EPL 6538 and the Bengalla Air Quality Management Plan (AQMP). Air quality monitoring results relevant to SSD-5170 are summarised in the following sections.

2.1 Particulate Matter less than 10 Microns

To evaluate the performance of Bengalla against the SSD-5170 criterion for particulate matter, BMC operates and maintains four High Volume Air Samplers (HVAS) measuring PM_{10}. The HVAS are run for 24 hours every six days.

PM_{10} data for the Reporting Period is provided in **Table 1**.

Pollutant:	PM_{10}
Unit of measure:	Micrograms per cubic metre (µg/m3)
Monitoring location:	See **Table 1** and **Appendix A.**
Monitoring frequency:	24 hours every 6 days
24 Hour Average Criteria:	50 $\mu g/m^3$ (Project Alone)
Annual Average Criteria:	25 $\mu g/m^3$
Sampled:	01/12/2022 – 31/12/2022

Table 1. PM_{10} Monitoring Summary

Run Date	Run Date Reading (µg/m3)			
	PM10-1 Racecourse Road	PM10-2 St James School	PM10-3 Roxburgh Road	PM10-4 Wybong Road
06/12/2022	38.0	27.8	35.8	31.1
12/12/2022	32.4	24.2	13.6	21.1
18/12/2022	17.6	12.2	20.7	29.3
24/12/2022	17.0	14.8	20.2	14.8
30/12/2022	9.1	25.3	36.7	51.0*1

(Table 1 represents total impact (ie incremental increase in concentration due to the development plus background concentrations due to other sources))

*1 Air Quality Management Plan approved on 14/12/2022 – PM10-4 real time monitor

Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia
ABN 32 053 909 470
T: +61 2 6542 9500
F: +61 2 6542 9599
bengalla.com.au

2.2 Total Suspended Particle Matter

To evaluate the performance of Bengalla against the SSD-5170 criterion for particulate matter, BMC operates and maintains five HVAS measuring TSP. The HVAS are run for 24 hours every six days.

TSP data for the Reporting Period is provided in **Table 2**.

Pollutant: TSP

Unit of measure: µg/m^3

Monitoring location: See **Table 2** and **Appendix B.**

Monitoring frequency: 24 hours every 6 days

Annual Average Criteria: 90 µg/m^3

Sampled: 01/12/2022 – 31/12/2022

Table 2. TSP Monitoring Summary

Run Date	Run Date Reading (µg/m3)				
	HV01 Wybong Road (East)	HV02 Racecourse Road	HV03 Logues Lane	HV04 St James School	HV06 Wybong Road (West)
06/12/2022	127	96.0	81.8	81.7	89.7
12/12/2022	111	81.5	79.1	64.7	56.8
18/12/2022	37.4	52.9	31.3	33.7	124
24/12/2022	44.3	40.1	28.1	33.5	59.4
30/12/2022	70.5	86.6	44.0	51.0	168

(Table 2 represents total impact (ie incremental increase in concentration due to the development plus background concentrations due to other sources))

Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia
ABN 32 053 909 470

T: +61 2 6542 9500
F: +61 2 6542 9599
bengalla.com.au

2.3 Depositional Dust

To evaluate the performance of Bengalla against the SSD-5170 criterion for depositional dust, BMC operates and maintains 14 depositional dust gauges surrounding the Bengalla operations.

Depositional dust data for the Reporting Period is provided in **Table 3**.

Pollutant:	Depositional Dust
Unit of measure:	Grams per metre squared per month (g/m^2/month)
Monitoring location:	See **Table 3** and **Appendix C.**
Monitoring frequency:	Monthly
Maximum depositional dust increase criteria:	2 g/m^2/month [(b)]
Maximum total depositional dust criteria:	4 g/m^2/month [(a)]
Sampled:	17/11/2022 – 15/12/2022

(a) Total impact (ie incremental increase in concentrations due to the development plus background concentrations due to other sources);

(b) Incremental impact (ie incremental increase in concentration due to the development on its own)

Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia
ABN 32 053 909 470

T: +61 2 6542 9500
F: +61 2 6542 9599
bengalla.com.au

Table 3. Depositional Dust Monitoring Summary

Sampling point		Measured Value (December 2022) g/m²/month	Sampling Comments
D01	Queen Street, Muswellbrook	1.2	Insects, vegetation
D02	King Street, Muswellbrook	2.8	Insects, vegetation
D04A	Industrial Estate, Muswellbrook	1.4	Insects, vegetation
D05	Intersection Kayuga and Wybong Road, Muswellbrook	2.8	Insects, vegetation
D06	Logues Lane, Muswellbrook	3.3	Insects
D07A	St James School, Muswellbrook	1.5	Insects, vegetation
D08	Denman Road, Muswellbrook	1.5	Insects
D09	Wybong Road, Muswellbrook	3.6	Insects, vegetation
D10	Racecourse Road, Muswellbrook	5.1	Insects
D20	Wyndams Arms R.O.W., Muswellbrook	4.2	Insects
D23B	Logues Lane, Muswellbrook	1.4	Insects, vegetation
D25	Roxburgh Road, Muswellbrook	2.5	Insects, vegetation
D26	Wybong Road, Muswellbrook	2.0	Insects
DA	Roxburgh Road, Muswellbrook	3.4	Insects, vegetation

(Table 3 represents total impact (ie incremental increase in concentration due to the development plus background concentrations due to other sources))

Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia
ABN 32 053 909 470
T: +61 2 6542 9500
F: +61 2 6542 9599
bengalla.com.au

3. NOISE

The noise monitoring program at Bengalla is undertaken in accordance with the requirements of SSD-5170 (as modified), EPL 6538 and the Bengalla Noise Management Plan (NMP).

Compliance attended noise monitoring is undertaken for 15 minutes once per calendar month during the night period (10 pm to 7 am) at three locations representative of the nearest private receivers.

Noise monitoring data for the Reporting Period is provided in **Table 4**.

Pollutant: Noise – Bengalla Only

Unit of measure: L_{Aeq} (15 minute)

Monitoring location: See **Table 4** and **Appendix D.**

Monitoring frequency: Monthly

AN01 criteria: 35 dB(A)

AN04 criteria: 35 dB(A)

AN03 criteria: 40 dB(A)

Sampled: 21-22 December 2022

Table 4. Noise – Bengalla Only[1] LAeq (15 minute) Monitoring Summary

Sampling point		Sample Date	Sample Time	Measured value
AN01	1431 Wybong Road	21/12/22	23:45 – 00:00	31
AN03	1312 Denman Road	22/12/22	00:25 – 00:40	IA
AN04	Opposite 9 Racecourse Road	22/12/22	01:30 – 01:45	28

IA - Inaudible. When there was no noise from the source of interest (Bengalla Mine) audible at the monitoring location.

1 - LAeq,15minute operational noise levels for Bengalla in the absence of all other noise sources.

Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia
ABN 32 053 909 470

T: +61 2 6542 9500
F: +61 2 6542 9599
bengalla.com.au

4. BLASTING

BMC maintains three blast monitors to measure blast overpressure and ground vibration against the SSD-5170 criteria.

The blast overpressure and ground vibration data for the Reporting Period is provided in **Table 5**.

Pollutant:	Air blast overpressure & ground vibration peak particle velocity
Unit of measure:	dB (Lin Peak) and millimetres per second (**mm/s**)
Monitoring locations:	See **Tables 5** and **Appendix D.**
Monitoring frequency:	All blasts
Overpressure criteria:	a) 115 linear decibels (**dB(L)**) for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and b) 120 dB(L) at any time.
Ground vibration criteria:	a) exceed 5 millimetres/second (**mm/s**) for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and b) 10mm/s at any time.
Sampled:	01/12/2022 – 31/12/2022

Bengalla Mining Company Pty Limited
Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia

ABN 32 053 909 470

T: +61 2 6542 9500
F: +61 2 6542 9599

bengalla.com.au

Table 5. Blast Monitoring Summary

Date	Time	Ground Vibration (mm/s)			Overpressure (dBL)		
		BLK	MRE	SCH	BLK	MRE	SCH
01/12/22	10:56:46 AM	0.14	0.49	0.03	99.90	108.00	95.90
03/12/22	3:02:32 PM	0.41	2.32	0.11	94.20	102.40	85.10
05/12/22	10:52:57 AM	0.10	0.66	0.03	95.80	104.10	91.70
06/12/22	10:56:15 AM	0.19	2.73	0.07	93.50	102.70	89.70
08/12/22	2:58:34 PM	0.38	2.55	0.09	105.60	103.80	98.20
10/12/22	11:38:45 AM	0.15	1.25	0.08	96.10	109.30	83.40
12/12/22	10:29:33 AM	0.85	3.09	0.28	108.30	100.30	106.50
12/12/22	10:30:49 AM	0.13	1.06	0.05	116.40	109.20	105.70
14/12/22	10:28:25 AM	0.08	0.76	0.03	96.20	112.90	105.80
16/12/22	12:28:32 PM	0.11	3.29	0.10	109.00	106.50	86.90
19/12/22	11:34:12 AM	0.19	2.57	0.19	103.40	104.90	86.00
21/12/22	11:14:59 AM	0.52	0.38	0.13	103.00	96.00	101.50
24/12/22	11:25:27 AM	0.09	1.12	0.08	84.30	101.90	102.70
30/12/22	10:00:25 AM	0.26	1.69	0.07	92.60	104.60	89.40
30/12/22	10:02:02 AM	0.18	2.50	0.04	106.40	107.90	89.80
31/12/22	3:26:00 PM	0.04	0.18	0.03	105.10	106.50	83.10
31/12/22	3:27:00 PM	0.04	0.32	0.02	98.20	108.10	94.90

Appendix A

PM10 Monitoring Locations

BENGALLA

BENGALLA MINE

PM10 Monitoring Locations

Appendix B

TSP Monitoring Locations

PRJ31060_BengallaMineNSW_50cm_19102017 _gda94mga56_ortho_full-area

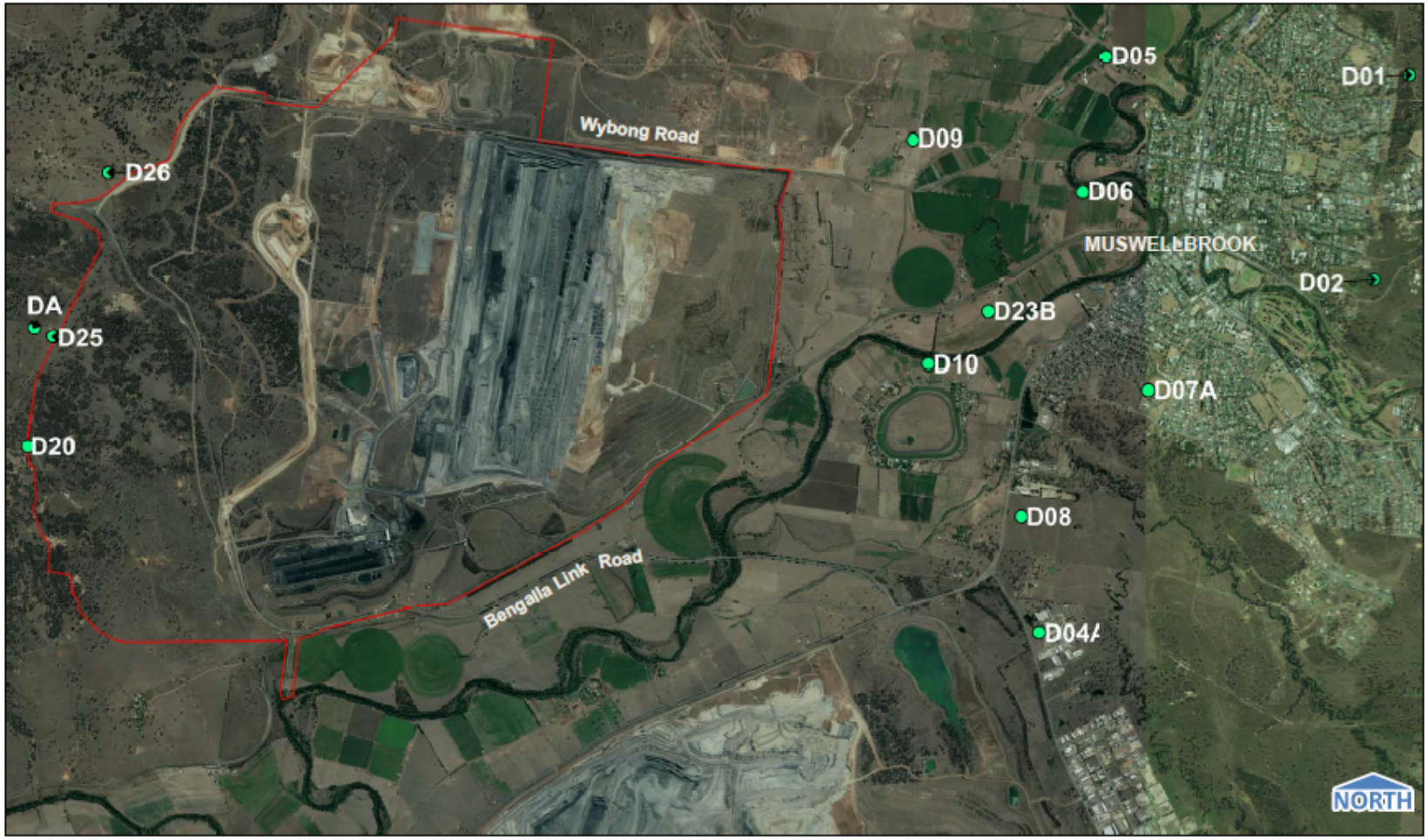
BENGALLA

BENGALLA MINE

TSP Monitoring Locations

Appendix C

Depositional Dust Monitoring Locations



PRJ31060_BengallaMineNSW_50cm_19102017 _gda94mga56_ortho_full-area

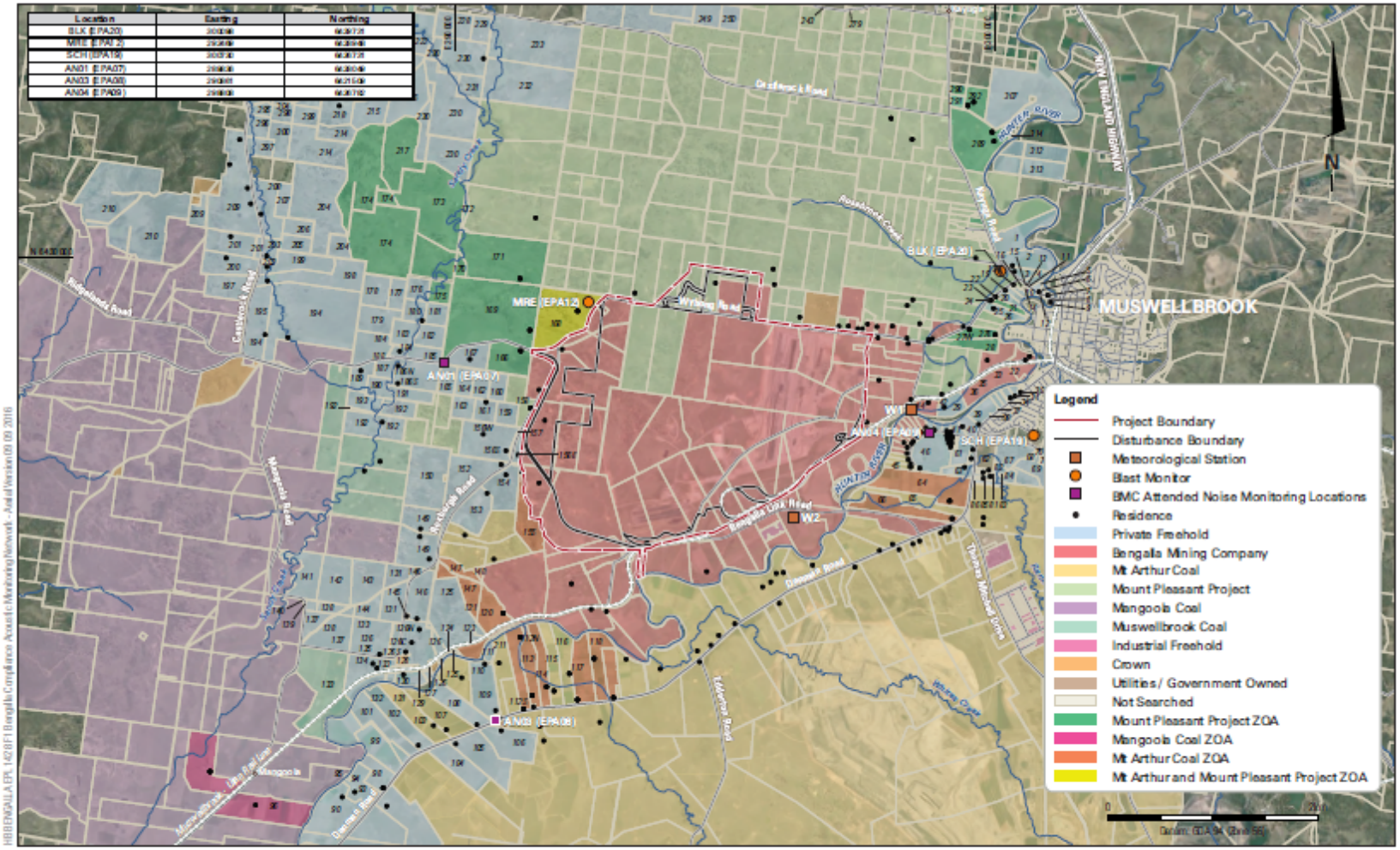
BENGALLA

BENGALLA MINE

Depositional Dust Monitoring Locations

Appendix D

Noise and Blast Monitoring Locations



H:\BENGALLA EPL 14281\Bengalla Compliance Acoustic Monitoring Network - Aerial Version 09 09 2016

BENGALLA MINE

Bengalla Compliance Acoustic Monitoring Network

FIGURE 1