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

Environment Protection Licence 6538
Monthly Monitoring Data Summary

July 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. SURFACE WATER 6
4. NOISE 10
5. BLASTING 12

Tables

Table 1. PM10 Monitoring Summary 5
Table 2: Electrical Conductivity Summary for EPA26 (1/7/2022 – 31/7/2022) 7
Table 3: Total Suspended Solids Summary – EPA26 (1/7/2022 – 31/7/2022) 8
Table 4: pH Summary – EPA26 (1/7/2022 – 31/7/2022) 9
Table 5 Noise – Bengalla Only[1] LAeq (15 minute) Monitoring Summary 11
Table 6: Blast Overpressure Monitoring Summary 13
Table 7: Blast Vibration Monitoring Summary 13

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

Environmental Protection Licence (EPL) holders are required under the *Protection of the Environment Operations Act 1997* to make publicly available their monitoring results for those parameters specified in the EPL. This document has been prepared to satisfy this requirement.

Bengalla Mining Company Pty Limited's (BMC) operations are conducted in accordance with EPL 6538. The licence details are as follows:

License Holder:	Bengalla Mining Company Pty Limited
Licence Number:	6538
Premises:	Bengalla Mine Bengalla Road via Muswellbrook NSW 2333
Access to Licence:	http://www.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=6538&id=6538&option=licence&searchrange=licence&range=POEO licence&prp=no&status=Issued
Monitoring Locations:	See main text and **Appendix A**

This document provides a summary of environmental monitoring data sampled as prescribed by EPL 6538 for July 2022 (Reporting Period). Monitoring data provided is as follows:

- Air quality, particulate matter less than 10 microns (PM_{10});
- Surface water, including discharge mine water and effluent water;
- Noise; and
- Blast vibration and overpressure.

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

Under EPL 6538 BMC is required to continuously record the average PM_{10} concentration at EPA Monitoring Points 22, 23 and 24 at intervals of 10 minutes. As per Condition M2.2, BMC commenced monitoring at these EPA Monitoring Points on 31 August 2017.

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

2.1 Particulate Matter less than 10 Microns

Pollutant:	PM_{10}
Unit of measure:	Micrograms per cubic metre (µg/m3)
Monitoring location:	See **Table 1** and **Appendix A.**
Monitoring frequency required by licence:	10-minute intervals
Sampled:	01/07/2022 – 31/07/2022

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 1. PM10 Monitoring Summary

Sampling point		No. of samples required by licence	No. of samples collected and analysed	Minimum sample value	Maximum sample value	Monthly mean of sample
EPA22	Lumeah Dairy, Bengalla Road, Muswellbrook	4464	3854[#1]	0	48.8	6.51
EPA23	Wybong Road (East), Muswellbrook	*The equipment at EPA23 was removed at 9:50am on 27/10/2021 due to impending blasting operations on 29/10/2021. This monitor is in the direct path of mining and will not be reinstated at this location. BMC will remove this monitoring point when the next Variation for EPL 6538 is lodged with the NSW Environment Protection Authority.*				
EPA24	Wybong Road (West), Muswellbrook	4464	4456	0	105.4	6.6

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

#1 EPA24 experienced power outages during the month. These were rectified and monitoring has since been restored.

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. SURFACE WATER

3.1 Discharge Monitoring

BMC participates in the Hunter River Salinity Trading Scheme (**HRSTS**). In accordance with EPL 6538, BMC maintains two monitoring locations to measure concentration, volume and mass of mine water discharges (see **Appendix B**).

3.1.1 Volume

Pollutant:	Mine water
Unit of measure:	Mega litres per day (**ML/day**)
Monitoring location:	EPA26 – Outlet pipe from 700 ML HRSTS storage dam.
Monitoring frequency required by licence:	Continuous during all discharge events.
Volume/mass limit:	200 ML/day
Sampled:	During the Reporting Period, Bengalla discharged 628.3ML of mine water under the HRSTS. 13.1 ML was discharged during Block No 187(1) (4:00am 4th July 2022 to 4:00am 5th July 2022); 28.8 ML was discharged during Block No 188(1 and 2) (4:00am 5th July 2022 to 4:00am 6th July 2022); 153.2 ML was discharged during Block No 189(1 and 2) (4:00am 6th July 2022 to 4:00am 7th July 2022); 57.1 ML was discharged during Block No 190 (1 and 2) (4:00am 7th July 2022 to 4:00am 8th July 2022); 81.0 ML was discharged during Block No 191(1) (4:00am 8th July 2022 to 4:00am 9th July 2022); 96.0ML was discharged during Block No 192(1) (4:00am 9th July 2022 to 4:00am 10th July 2022); 33.8 ML was discharged during Block No 193(1) (4:00am 10th July 2022 to 4:00am 11th July 2022); 29.2 ML was discharged during Block No 194(1) (4:00am 11th July 2022 to 4:00am 12th July 2022); 22.9 ML was discharged during Block No 195(1) (4:00am 12th July 2022 to 4:00am 13th July 2022);

3.5 ML was discharged during Block No 203(2) (4:00am 20th July 2022 to 4:00am 21st July 2022);

8.9 ML was discharged during Block No 208(1) (4:00am 25th July 2022 to 4:00am 26th July 2022);

27.4 ML was discharged during Block No 209(1) (4:00am 26th July 2022 to 4:00am 27th July 2022);

28.0 ML was discharged during Block No 210(1) (4:00am 27th July 2022 to 4:00am 28th July 2022);

10.7 ML was discharged during Block No 211(1) (4:00am 28th July 2022 to 4:00am 29th July 2022);

5.7 ML was discharged during Block No 212(1) (4:00am 29th July 2022 to 4:00am 30th July 2022);

14.7ML was discharged during Block No 213(1) (4:00am 30th July 2022 to 4:00am 31st July 2022);

14.3ML was discharged during Block No 214(1) (4:00am 31st July 2022 to 4:00am 1st August 2022);

3.1.2 Conductivity

Pollutant: Conductivity

Unit of measure: Microsiemens per centimetre (**µS/cm**)

Monitoring location: EPA26 – Outlet pipe from 700 ML HRSTS storage dam.

Monitoring frequency required by licence: Continuous during all discharge events (EPA26)

Sampled: See Table 2

Table 2: Electrical Conductivity Summary for EPA26 (1/7/2022 – 31/7/2022)

Discharge Block Number	No. of records
187(1)	967
188(1)	686
188(2)	624
189(1)	281
189(2)	1078
190(1)	318
190(2)	1041

191(1)	1372
192(1)	1303
193(1)	1362
194(1)	1344
195(1)	1377
203(2)	626
208(1)	892
209(1)	1354
210(1)	1332
211(1)	1344
212(1)	1137
213(1)	1368
214(1)	1345

3.1.3 Total suspended solids and pH

Pollutants: pH and Total Suspended Solids (**TSS**)

Unit of measure: pH and Milligrams per litre (**mg/L**)

Monitoring location: EPA26 – Outlet pipe from 700 ML HRSTS storage dam.

Monitoring frequency required by licence: Daily during all discharge events

pH limit: 6.5 – 9.5 (100th percentile)

TSS limit: 120 (100th percentile)

Sampled: See Tables 3 & 4

Table 3: Total Suspended Solids Summary – EPA26 (1/7/2022 – 31/7/2022)

Block Number	No of Samples collected and analysed	Sample value mg/L
187	2	19 , 8
188	2	7 , 8
189	2	7 , 9
190	2	7 , 7
191	2	9 , 14
192	2	15 , 21
193	2	18 , 15
194	2	19 , 72

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

195	2	56 , 80
203	1	63
208	1	36
209	2	14 , 46
210	2	7 , 11
211	2	24 , 25
212	1	12
213	2	6 , 8
214	1	<5

(Monitored daily during discharge via grab sample as per EPL 6538 Condition M2.3)

Table 4: pH Summary – EPA26 (1/7/2022 – 31/7/2022)

Block Number	No of Samples collected and analysed	Sample value pH
187	2	9.01 , 9.14
188	2	9.29 , 9.16
189	2	9.17 , 9.17
190	2	9.20 , 9.42
191	2	9.31 , 9.26
192	2	9.19 , 9.27
193	2	9.17 , 9.24
194	2	9.20 , 9.24
195	2	9.33 , 9.36
203	1	9.15
208	1	9.16
209	2	9.13 , 8.97
210	2	9.13 , 8.92
211	2	9.16 , 8.44
212	1	9.05
213	2	9.11 , 8.90
214	1	9.10

(Monitored daily during discharge via grab sample as per EPL 6538 Condition M2.3)

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

3.2 Effluent Quality Monitoring

Under EPL 6538 BMC is required to take quarterly grab samples from effluent quality monitoring point EPA25.

Pollutants:	Faecal Coliforms and pH
Unit of measure:	Colony Forming Units (CFU) per 100 millilitres (**CFU/100mL**) and pH
Monitoring location:	EPA25 – See **Appendix B**.
Monitoring frequency required by licence:	Quarterly
Sampled:	Not applicable to July

4. NOISE

In accordance with EPL 6538, BMC undertakes compliance attended noise monitoring for 15minutes 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 2**.

Pollutant:	Noise – Bengalla Only
Unit of measure:	LAeq (15 minute)
Monitoring locations:	See **Table 5** and **Appendix C**.
Monitoring frequency required by licence:	Monthly
EPA7/AN01 limit:	35 dB(A)
EPA9/AN04 limit:	35 dB(A)
EPA8/AN03 limit:	40 dB(A)
Sampled:	19 July 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 Noise – Bengalla Only[1] LAeq (15 minute) Monitoring Summary

Sampling point	No. of samples required by licence	No. of samples taken and analysed	Sample Date	Sample Time	Measured value
EPA07/AN01	1	1	19/7/2022	01:51 – 02:06	30
EPA08/AN03	1	1	19/7/2022	02:27 – 02:42	Est 30
EPA09/AN04	1	1	19/7/2022	03:04 – 03:19	35

Note:

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.

Est - Estimate

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

5. BLASTING

In accordance with EPL 6538, BMC maintains three blast monitors on private (non-mine owned) land to measure air-blast overpressure and ground vibration for all blast events undertaken at Bengalla.

The blast overpressure and ground vibration data for the Reporting Period is provided in **Tables 6 and 7**.

Pollutant:	Air blast overpressure & ground vibration peak particle velocity
Unit of measure:	dB (Lin Peak) and millimetres per second (mm/s)
Monitoring locations:	See **Table 6**, **Table 7** and **Appendix C**.
Monitoring frequency required by licence:	All blasts
Overpressure limits:	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 limits:	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:	01/07/2022 – 31/07/2022

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 6: Blast Overpressure Monitoring Summary

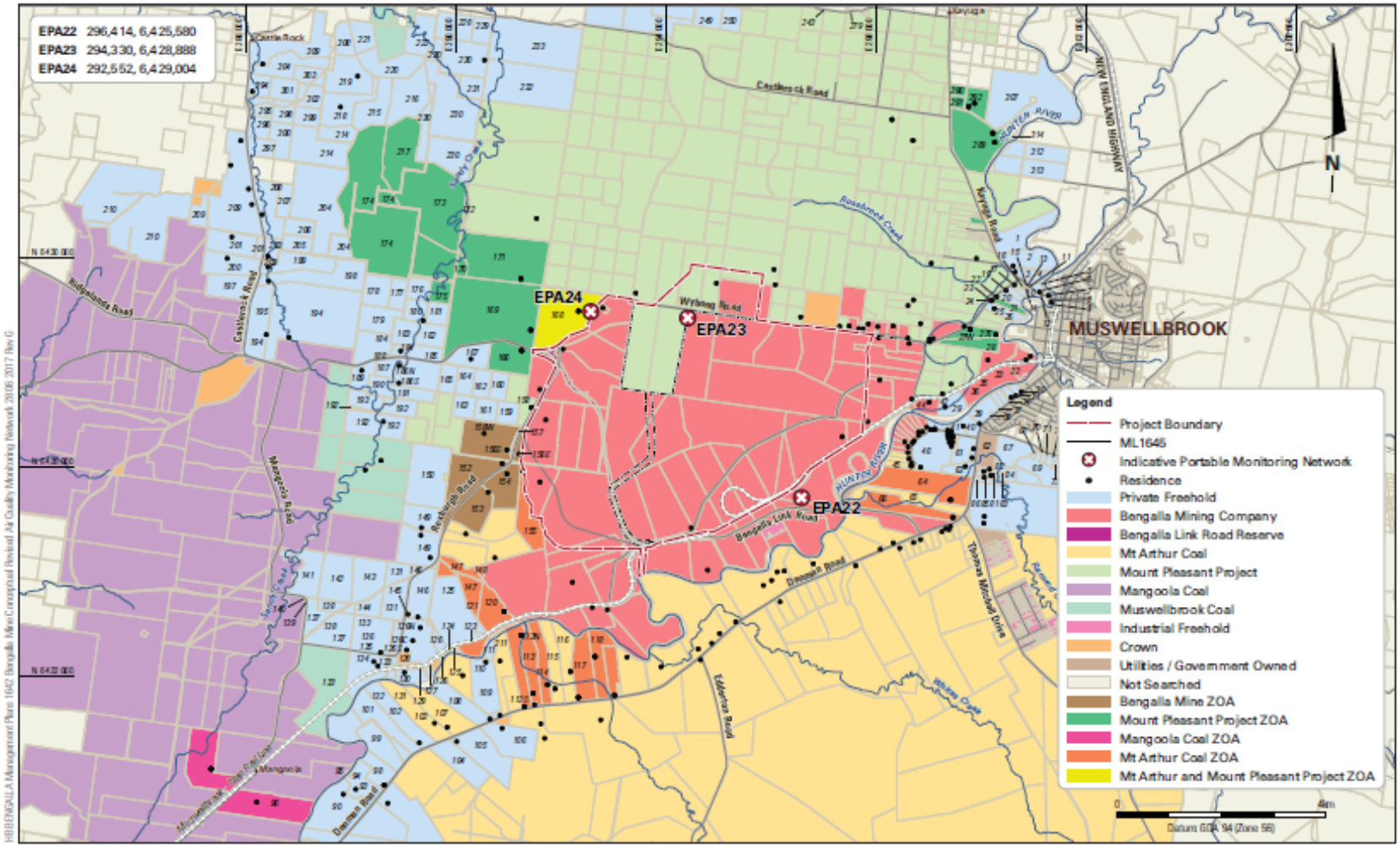
Sampling point	Pollutant	Unit of measure	No. of samples required by licence	No. of samples collected and analysed	Minimum value	Maximum value	Mean of samples
BLK (EPA20)	Overpressure	dB(L)	All blast events	10	90.8	103	95.3
SCH (EPA19)	Overpressure	dB(L)	All blast events	10	88.5	107.9	96.9
MRE (EPA12)	Overpressure	dB(L)	All blast events	10	100.5	112.6	104.4

Table 7: Blast Vibration Monitoring Summary

Sampling point	Pollutant	Unit of measure	No. of samples required by licence	No. of samples collected and analysed	Minimum value	Maximum value	Mean of samples
BLK (EPA20)	Ground vibration	mm/s	All blast events	10	0.04	0.66	0.14
SCH (EPA19)	Ground vibration	mm/s	All blast events	10	0.02	0.09	0.06
MRE (EPA12)	Ground vibration	mm/s	All blast events	10	0.26	2.02	0.69

Appendix A

EPL 6538 Particulate Matter Monitoring Locations

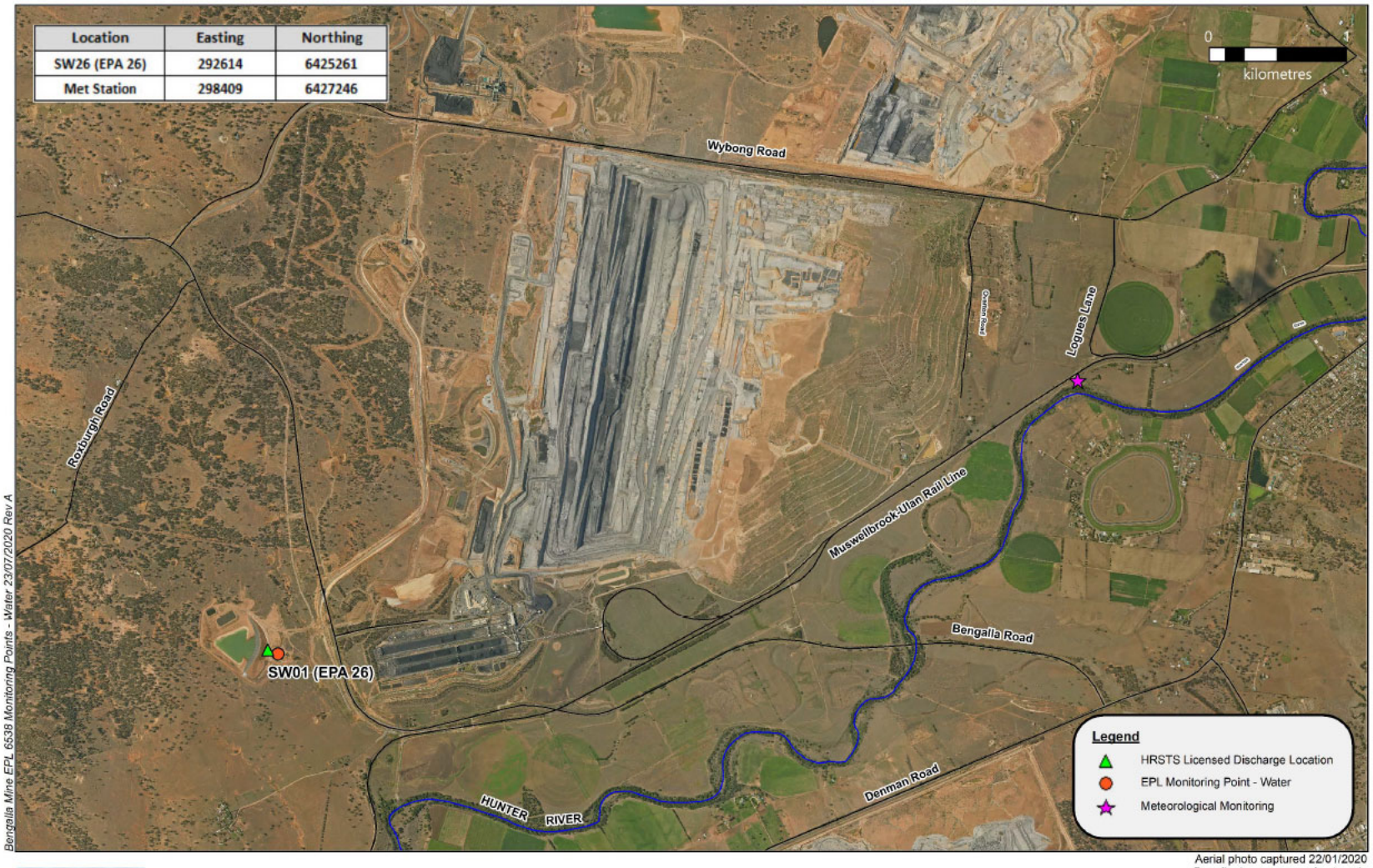


BENGALLA MINE

EPL 6538 PM10 Monitoring Locations

Appendix B

EPL 6538 Surface Water Monitoring Locations



Bengalla Mine EPL 6538 Monitoring Points - Water 23/07/2020 Rev A

Aerial photo captured 22/01/2020
Coordinates are approximate only
Coordinate system MGA zone 56 GDA 94

Bengalla Mine

EPL 6538 Monitoring Points - Water

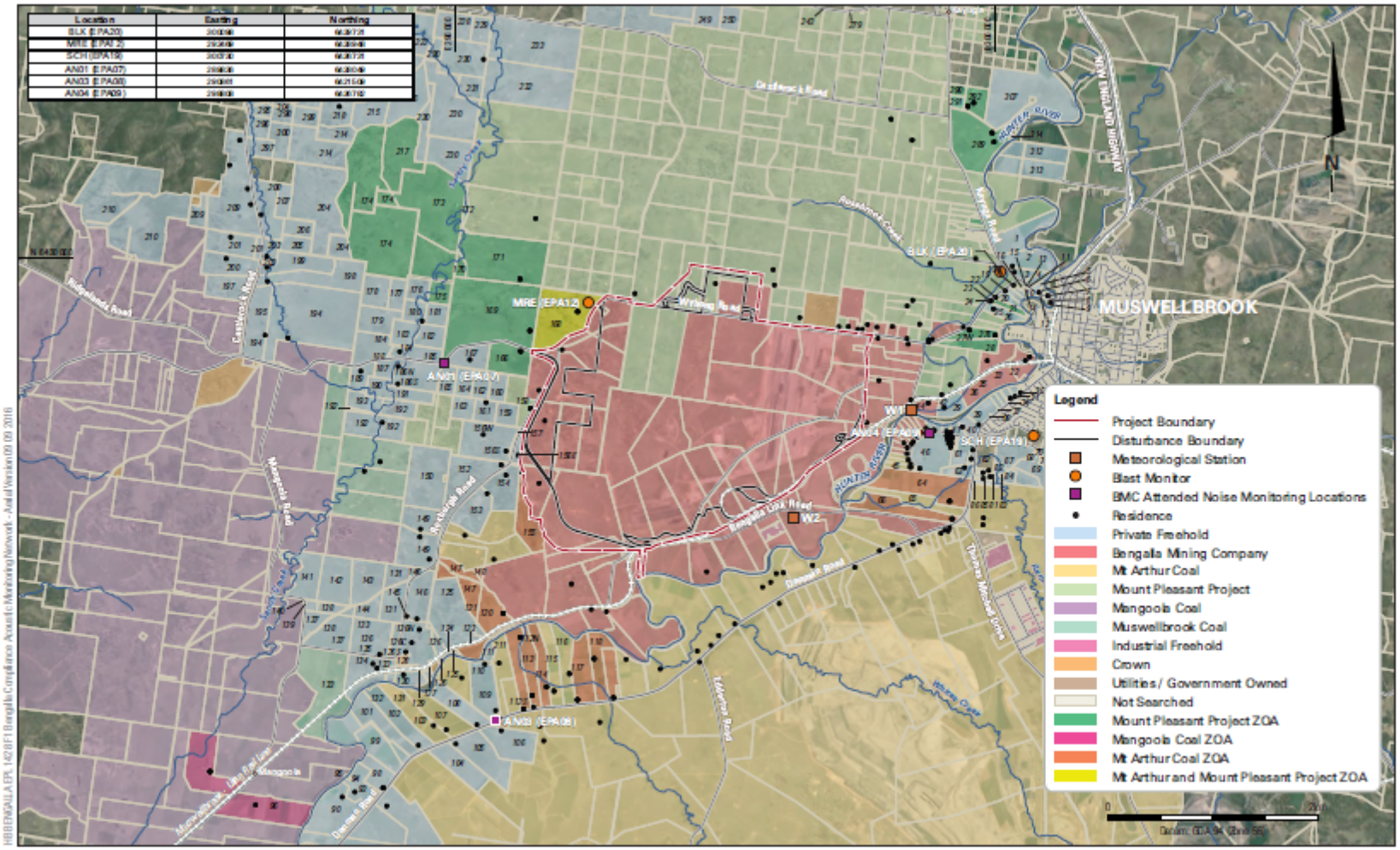
BENGALLA

BENGALLA MINE

EPL 6538 Effluent Quality Monitoring Location

Appendix C

EPL 6538 Noise and Blast Monitoring Locations



H:\BENGALLA EPL 1428\F1 Bengalla Compliance Acoustic Monitoring Network - Aerial Version (09 09 2016)

BENGALLA MINE

EPL 6538 Noise & Blast Monitoring Locations