



Bengalla Mining Company Pty. Limited

Bengalla Road, (Locked Mailbag 5)

Muswellbrook NSW 2333 Australia

A.B.N. 32 053 909 470

Bengalla Mine

Environment Protection Licence 6538 Monthly Monitoring Data Summary

April 2019

Operator, for and on behalf of Bengalla Joint Venture, an unincorporated joint venture between:
Harcove Pty Ltd, Wesfarmers Bengalla Limited, Taipower Bengalla Pty Limited & Mitsui Bengalla Investment Pty Limited.

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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=POEOlicence&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 April 2019 (Reporting Period). Monitoring data provided is as follows:

- Air quality, particulate matter less than 10 microns (PM₁₀);
- Surface water, including discharge mine water and effluent water;
- Noise; and
- Blast vibration and overpressure.

Monitoring Data Obtained: 1 May 2019

Monitoring Data Published: 16 May 2019



2. AIR QUALITY

Under EPL 6538 BMC is required to continuously record the average PM₁₀ concentration at EPA Monitoring Points 22, 23 and 24 at intervals of 10 minutes. As per Condition E1.1, BMC commenced monitoring at these EPA Monitoring Points on 31 August 2017.

PM₁₀ 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/m ³) |
| Monitoring location: | See Table 1 and Appendix A . |
| Monitoring frequency required by licence: | 10-minute intervals |
| Sampled: | 01/04/2019 – 30/04/2019 |



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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 | 4,320 | 4,316 | 0 | 93 | 11 |
| EPA23 | Wybong Road (East), Muswellbrook | 4,320 | 4,313 | 0 | 148 | 15 |
| EPA24 | Wybong Road (West), Muswellbrook | 4,320 | 4,190 | 0 | 188 | 10 |

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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: | EPA01 – Outlet pipe from 280 ML HRSTS storage dam. |
| Monitoring frequency required by licence: | Continuous during all discharge events. |
| Volume/mass limit: | 200 ML/day |
| Sampled: | Not applicable. During the Reporting Period, Bengalla did not discharge any mine water under the HRSTS. |

3.1.2 Conductivity

| | |
|--|---|
| Pollutant: | Conductivity |
| Unit of measure: | Microsiemens per centimetre (µS/cm) |
| Monitoring location: | EPA1 – Outlet pipe from 280 ML HRSTS storage dam. EPA2 – Tributary monitoring point in Dry Creek downstream of EPA1. |
| Monitoring frequency required by licence: | Continuous during all discharge events (EPA01); Two times daily during discharge (EPA02). |
| Sampled: | Not applicable. During the Reporting Period, Bengalla did not discharge any mine water under the HRSTS. |



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: | EPA01 – Outlet pipe from 280 ML HRSTS storage dam. |
| Monitoring frequency required by licence: | Daily during all discharge events |
| pH limit: | 6.5 – 9.5 (100 th percentile) |
| TSS limit: | 120 (100 th percentile) |
| Sampled: | Not applicable. During the Reporting Period, BMC did not discharge any mine water under the HRSTS. |

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. BMC was not required to undertake effluent quality monitoring during the Reporting Period. |



4. NOISE

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

| | |
|--|--|
| Pollutant: | Noise – Bengalla Only |
| Unit of measure: | LAeq (15 minute) |
| Monitoring locations: | See Table 2 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: | 14-15 April 2019 |



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Table 2. Noise – Bengalla Only¹ 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 | 14/04/2019 | 23:20 – 23:35 | 27 |
| EPA08/AN03 | 1 | 1 | 14/04/2019 | 23:55 – 00:10 | 20 |
| EPA09/AN04 | 1 | 1 | 15/04/2019 | 00:27 – 00:42 | IA |

Note:

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

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

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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 blasts events undertaken at Bengalla.

Overpressure and ground vibration data for the Reporting Period is provided in **Tables 3 and 4**.

| | |
|--|---|
| 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 3 , Table 4 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: | 01/04/2019 – 30/04/2019 |



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Table 3. 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 | 17 | 84.2 | 109.5 | 95.5 |
| SCH (EPA19) | Overpressure | dB(L) | All blast events | 17 | 85.8 | 107.0 | 92.0 |
| MRE (EPA12) | Overpressure | dB(L) | All blast events | 17 | 92.1 | 113.8 | 99.2 |

Table 4. Blast Vibration Monitoring Summary

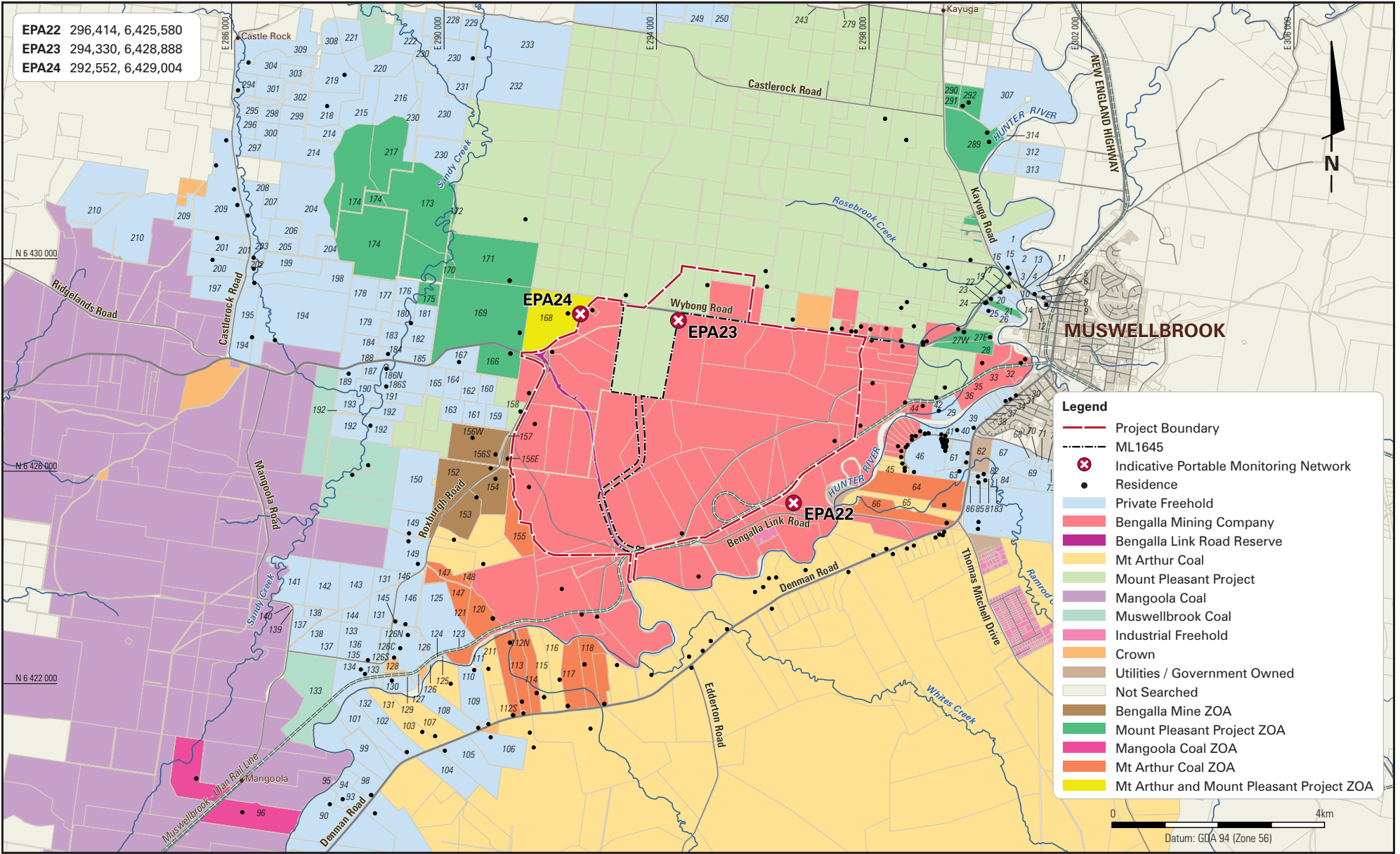
| Sampling point | Pollutant | Unit of measure | No. of samples required by licence | No. of samples collected and analysed | Minimum value | Maximum value | Mean of samples |
|----------------|------------------|-----------------|------------------------------------|---------------------------------------|---------------|---------------|-----------------|
| BLK (EPA20) | Ground vibration | mm/s | All blast events | 17 | 0.05 | 0.66 | 0.23 |
| SCH (EPA19) | Ground vibration | mm/s | All blast events | 17 | 0.02 | 0.22 | 0.09 |
| MRE (EPA12) | Ground vibration | mm/s | All blast events | 17 | 0.33 | 4.35 | 1.20 |

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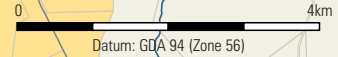
Appendix A

EPL 6538 Particulate Matter Monitoring Locations



EPA22 296,414, 6,425,580
 EPA23 294,330, 6,428,888
 EPA24 292,552, 6,429,004

- Legend**
- Project Boundary
 - ML1645
 - X Indicative Portable Monitoring Network
 - Residence
 - Private Freehold
 - Bengalla Mining Company
 - Bengalla Link Road Reserve
 - Mt Arthur Coal
 - Mount Pleasant Project
 - Mangoola Coal
 - Industrial Freehold
 - Crown
 - Utilities / Government Owned
 - Not Searched
 - Bengalla Mine ZOA
 - Mount Pleasant Project ZOA
 - Mangoola Coal ZOA
 - Mt Arthur Coal ZOA
 - Mt Arthur and Mount Pleasant Project ZOA



BENGALLA MINE

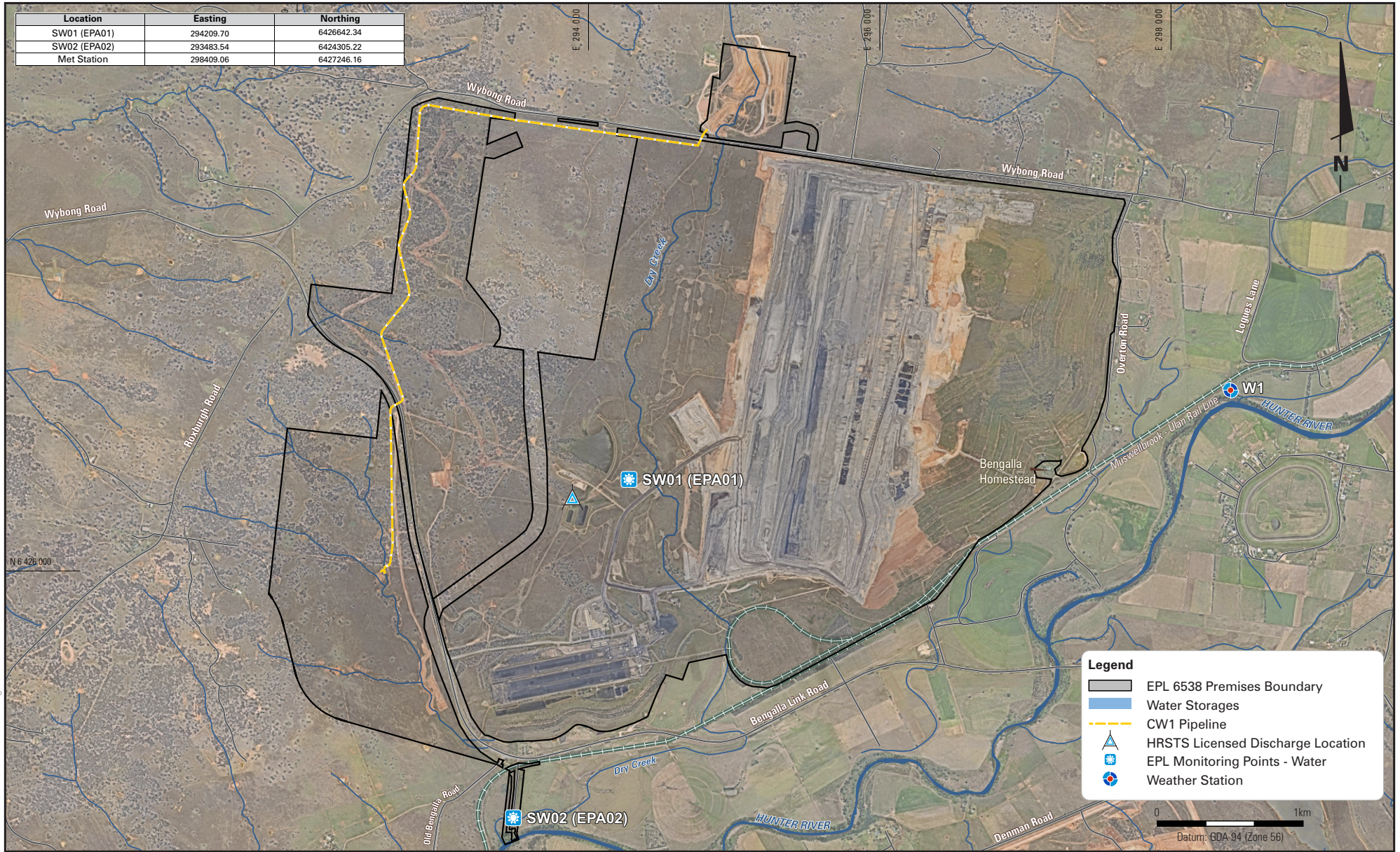


EPL 6538 PM10 Monitoring Locations

Appendix B

EPL 6538 Surface Water Monitoring Locations

| Location | Easting | Northing |
|--------------|-----------|------------|
| SW01 (EPA01) | 294209.70 | 6426642.34 |
| SW02 (EPA02) | 293483.54 | 6424305.22 |
| Met Station | 298409.06 | 6427246.16 |



HB BENGALLA 1642 F1 EPL Monitoring Points - Water 21 06 2017 Rev E



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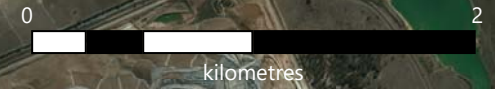
EPL 6538 Discharge Monitoring Locations

Location **Easting** **Northing**
EPA25 294,016 6,425,174



Legend

- Project Boundary
- Disturbance Boundary
- Effluent quality monitoring point



PRJ33286_BengallaMineNSW_50cm_25072018_gda94mga56_ortho_full-area



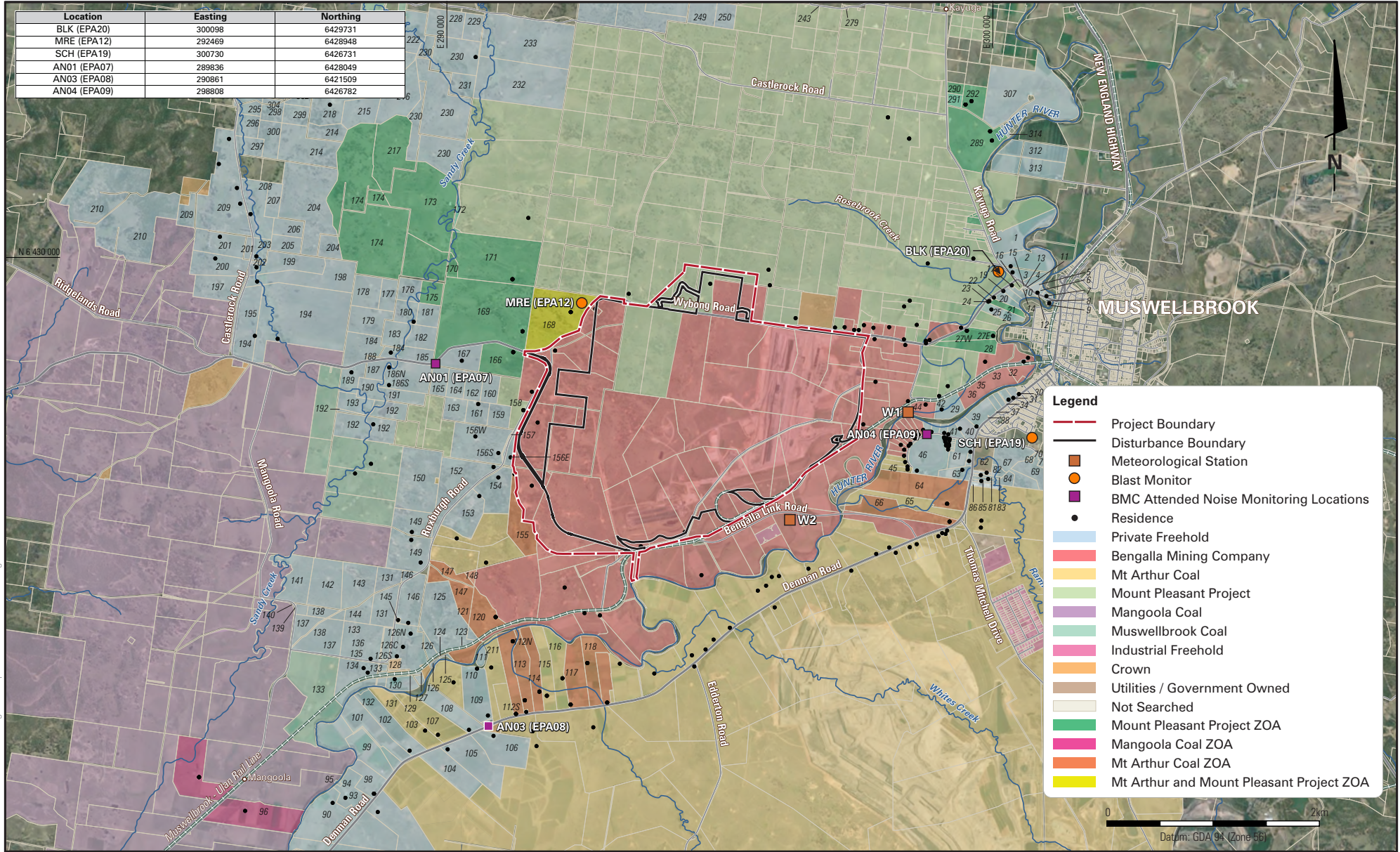
BENGALLA MINE

EPL 6538 Effluent Quality Monitoring Location

Appendix C

EPL 6538 Noise and Blast Monitoring Locations

| Location | Easting | Northing |
|--------------|---------|----------|
| BLK (EPA20) | 300098 | 6429731 |
| MRE (EPA12) | 292469 | 6428948 |
| SCH (EPA19) | 300730 | 6426731 |
| AN01 (EPA07) | 289836 | 6428049 |
| AN03 (EPA08) | 290861 | 6421509 |
| AN04 (EPA09) | 298808 | 6426782 |



HB BENGALLA EPL 1428 F1 Bengalla Compliance Acoustic Monitoring Network - Aerial Version 09 09 2016



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EPL 6538 Noise & Blast Monitoring Locations