



**Bengalla Mining Company Pty Limited**

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Muswellbrook NSW 2333 Australia

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## **Bengalla Mine**

# **Environment Protection Licence 6538 Monthly Monitoring Data Summary**

## **September 2022**



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## Contents

1. INTRODUCTION.....	3
2. AIR QUALITY.....	4
3. SURFACE WATER .....	6
4. NOISE .....	9
5. BLASTING.....	11

## Tables

Table 1. PM10 Monitoring Summary.....	5
Table 2: Electrical Conductivity Summary for EPA26 (1/9/2022 – 30/9/2022).....	7
Table 3: Total Suspended Solids Summary – EPA26 (1/9/2022 – 30/9/2022).....	8
Table 4: pH Summary – EPA26 (1/9/2022 – 30/9/2022).....	8
Table 5: Effluent Quality Monitoring – EPA25.....	9
Table 6 Noise – Bengalla Only <sup>1</sup> LAeq (15 minute) Monitoring Summary .....	10
Table 7: Blast Overpressure Monitoring Summary .....	12
Table 8: Blast Vibration Monitoring Summary.....	12



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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:	<a href="http://www.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=6538&amp;id=6538&amp;option=licence&amp;searchrange=licence&amp;range=POEO&amp;licence&amp;prp=no&amp;status=Issued">http://www.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=6538&amp;id=6538&amp;option=licence&amp;searchrange=licence&amp;range=POEO&amp;licence&amp;prp=no&amp;status=Issued</a>
Monitoring Locations:	See main text and <b>Appendix A</b>

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

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



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## 2. AIR QUALITY

Under EPL 6538 BMC is required to continuously record the average PM<sub>10</sub> 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<sub>10</sub> data for the Reporting Period is provided in **Table 1**.

### 2.1 Particulate Matter less than 10 Microns

<b>Pollutant:</b>	PM <sub>10</sub>
<b>Unit of measure:</b>	Micrograms per cubic metre (µg/m <sup>3</sup> )
<b>Monitoring location:</b>	See <b>Table 1</b> and <b>Appendix A</b> .
<b>Monitoring frequency required by licence:</b>	10-minute intervals
<b>Sampled:</b>	01/09/2022 – 30/09/2022



**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	4320	4318	0	55.2	7.00
EPA23	Wybong Road (East), Muswellbrook	<i>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.</i>				
EPA24	Wybong Road (West), Muswellbrook	4320	4318	0	88.2	6.86

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



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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

<b>Pollutant:</b>	Mine water
<b>Unit of measure:</b>	Mega litres per day ( <b>ML/day</b> )
<b>Monitoring location:</b>	EPA26 – Outlet pipe from 700 ML HRSTS storage dam.
<b>Monitoring frequency required by licence:</b>	Continuous during all discharge events.
<b>Volume/mass limit:</b>	200 ML/day
<b>Sampled:</b>	<p>During the Reporting Period, Bengalla discharged 213.2ML of mine water under the HRSTS.</p> <p>16.1ML was discharged during Block No 263 (4:00am 18<sup>th</sup> September 2022 to 4:00am 19<sup>th</sup> September 2022);</p> <p>24.1ML was discharged during Block No 264 (4:00am 19<sup>th</sup> September 2022 to 4:00am 20<sup>th</sup> September 2022);</p> <p>9.8ML was discharged during Block No 265 (4:00am 20<sup>th</sup> September 2022 to 4:00am 21<sup>st</sup> September 2022);</p> <p>50.8ML was discharged during Block No 268 (4:00am 23<sup>rd</sup> September 2022 to 4:00am 24<sup>th</sup> September 2022);</p> <p>65.5ML was discharged during Block No 269 (4:00am 24<sup>th</sup> September 2022 to 4:00am 25<sup>th</sup> September 2022);</p> <p>10.4ML was discharged during Block No 270 (4:00am 25<sup>th</sup> September 2022 to 4:00am 26<sup>th</sup> September 2022);</p>



12.2ML was discharged during Block No 271 (4:00am 26<sup>th</sup> September 2022 to 4:00am 27<sup>th</sup> September 2022);

21.3ML was discharged during Block No 272 (4:00am 27<sup>th</sup> September 2022 to 4:00am 28<sup>th</sup> September 2022);

3.0ML was discharged during Block No 273 (4:00am 28<sup>th</sup> September 2022 to 4:00am 29<sup>th</sup> September 2022);

### 3.1.2 Conductivity

<b>Pollutant:</b>	Conductivity
<b>Unit of measure:</b>	Microsiemens per centimetre ( $\mu\text{S}/\text{cm}$ )
<b>Monitoring location:</b>	EPA26 – Outlet pipe from 700 ML HRSTS storage dam.
<b>Monitoring frequency required by licence:</b>	Continuous during all discharge events (EPA26)
<b>Sampled:</b>	See Table 2

**Table 2: Electrical Conductivity Summary for EPA26 (1/9/2022 – 30/9/2022)**

Discharge Block Number	No. of records
263(1)	953
264(1)	1040
265(1)	979
268(2 and 3)	792
269(1 and 3)	931
270(1)	967
271(1)	989
272(1)	1008
273(1)	510

### 3.1.3 Total suspended solids and pH

<b>Pollutants:</b>	pH and Total Suspended Solids (TSS)
<b>Unit of measure:</b>	pH and Milligrams per litre (mg/L)



<b>Monitoring location:</b>	EPA26 – Outlet pipe from 700 ML HRSTS storage dam.
<b>Monitoring frequency required by licence:</b>	Daily during all discharge events
<b>pH limit:</b>	6.5 – 9.5 (100 <sup>th</sup> percentile)
<b>TSS limit:</b>	120 (100 <sup>th</sup> percentile)
<b>Sampled:</b>	See Tables 3 & 4

**Table 3: Total Suspended Solids Summary – EPA26 (1/9/2022 – 30/9/2022)**

Block Number	No of Samples collected and analysed	Sample value mg/L
263(1)	1	62
264(1)	1	11
265(1)	1	8
268(2 and 3)	2	16 and <5
269(1 and 3)	1	12
270(1)	1	14
271(1)	1	13
272(1)	1	13
273(1)	1	9

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

**Table 4: pH Summary – EPA26 (1/9/2022 – 30/9/2022)**

Block Number	No of Samples collected and analysed	Sample value pH
263(1)	1	9.10
264(1)	1	9.12
265(1)	1	9.10
268(2 and 3)	2	8.96 and 9.26
269(1 and 3)	1	9.08
270(1)	1	9.12
271(1)	1	9.12
272(1)	1	9.12
273(1)	1	9.17

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





### 3.2 Effluent Quality Monitoring

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

<b>Pollutants:</b>	Faecal Coliforms and pH
<b>Unit of measure:</b>	Colony Forming Units (CFU) per 100 millilitres (CFU/100mL) and pH
<b>Monitoring location:</b>	EPA25 – See <b>Appendix B</b> .
<b>Monitoring frequency required by licence:</b>	Quarterly
<b>Sampled:</b>	See <b>Table 5</b>

**Table 5:** Effluent Quality Monitoring – EPA25

Sample Date	Faecal Coliforms (cols/100ML)	pH
7/9/2022	<9	7.85

## 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 6**.

<b>Pollutant:</b>	Noise – Bengalla Only
<b>Unit of measure:</b>	LAeq (15 minute)
<b>Monitoring locations:</b>	See <b>Table 5</b> and <b>Appendix C</b> .
	Monthly



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**Monitoring frequency required by licence:**

**EPA7/AN01 limit:** 35 dB(A)

**EPA9/AN04 limit:** 35 dB(A)

**EPA8/AN03 limit:** 40 dB(A)

**Sampled:** 26 - 27 September 2022

**Table 6 Noise – Bengalla Only<sup>1</sup> 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	26/9/2022	23:04 – 23:19	34
EPA08/AN03	1	1	26/9/2022	23:42 – 23:57	IA
EPA09/AN04	1	1	27/9/2022	00:24 – 00:39	IA

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.



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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 blast events undertaken at Bengalla.

The blast overpressure and ground vibration data for the Reporting Period is provided in **Tables 7 and 8**.

<b>Pollutant:</b>	Air blast overpressure & ground vibration peak particle velocity
<b>Unit of measure:</b>	dB (Lin Peak) and millimetres per second (mm/s)
<b>Monitoring locations:</b>	See <b>Table 7, Table 8</b> and <b>Appendix C</b> .
<b>Monitoring frequency required by licence:</b>	All blasts
<b>Overpressure limits:</b>	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
<b>Ground vibration limits:</b>	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
<b>Sampled:</b>	01/09/2022 – 30/09/2022



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**Table 7: Blast Overpressure Monitoring Summary**

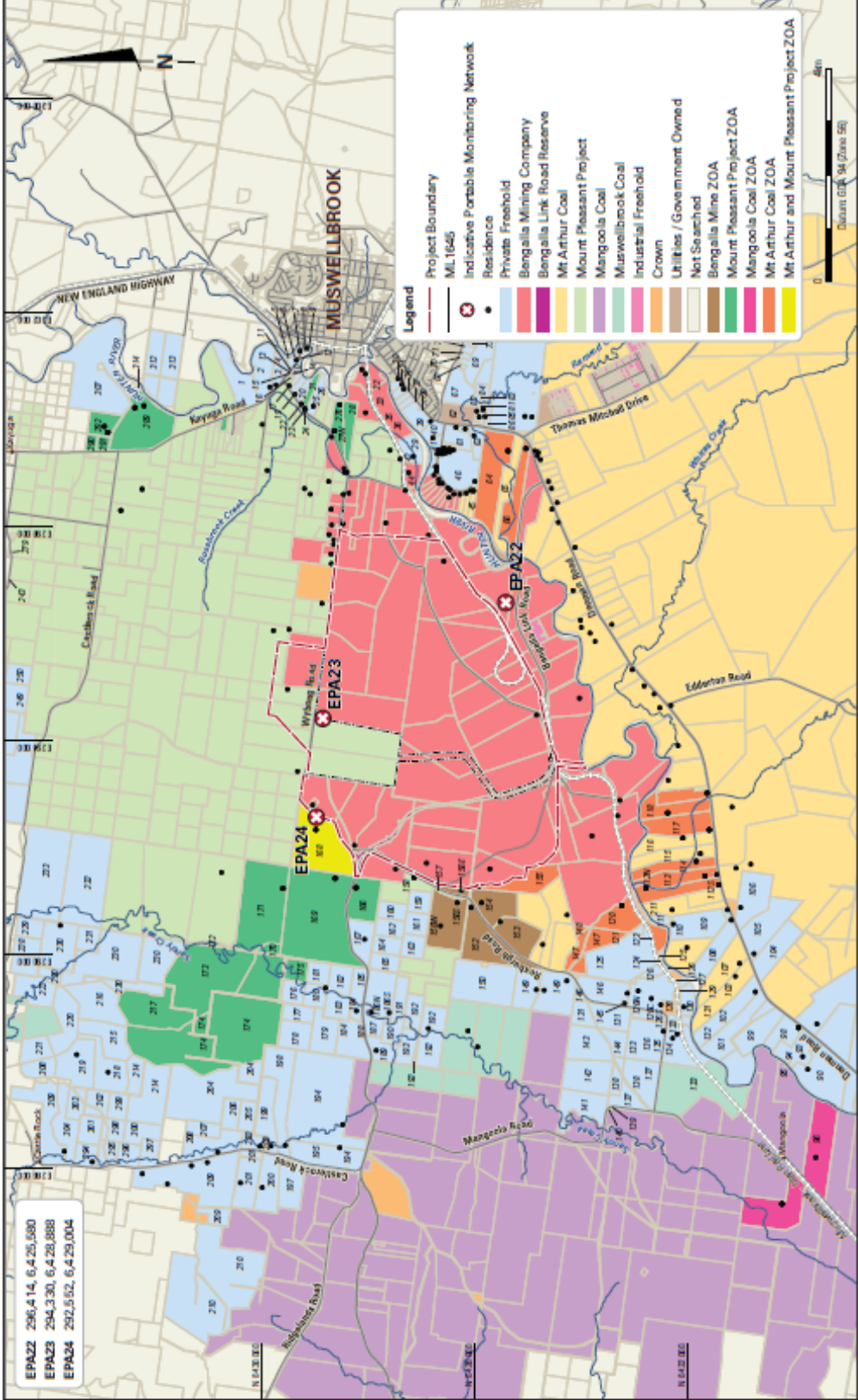
Sampling point	Pollutant	Unit of measure	No. of samples required by licence	No. of samples collected and analysed	Minimum value	Maximum value	Mean of samples
BLK (EPA20)	Overpressure	dB(L)	All blast events	12	89.4	118.6	99.6
SCH (EPA19)	Overpressure	dB(L)	All blast events	12	88.4	110.7	97.0
MRE (EPA12)	Overpressure	dB(L)	All blast events	12	99.8	111.6	104.8

**Table 8: 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	12	0.08	0.31	0.18
SCH (EPA19)	Ground vibration	mm/s	All blast events	12	0.04	0.17	0.09
MRE (EPA12)	Ground vibration	mm/s	All blast events	12	0.44	2.61	1.40

# **Appendix A**

## **EPL 6538 Particulate Matter Monitoring Locations**



BENGALLA MINE

EPL 6538 PM10 Monitoring Locations



BENGALLA Management Plan 1502 Bengalla Mine Conceptual Inland Air Quality Monitoring Network 2006 2017 Rev 0

## **Appendix B**

### **EPL 6538 Surface Water Monitoring Locations**





Location	Easting	Northing
SW26 (EPA 26)	292614	6425261
Met Station	298409	6427246

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

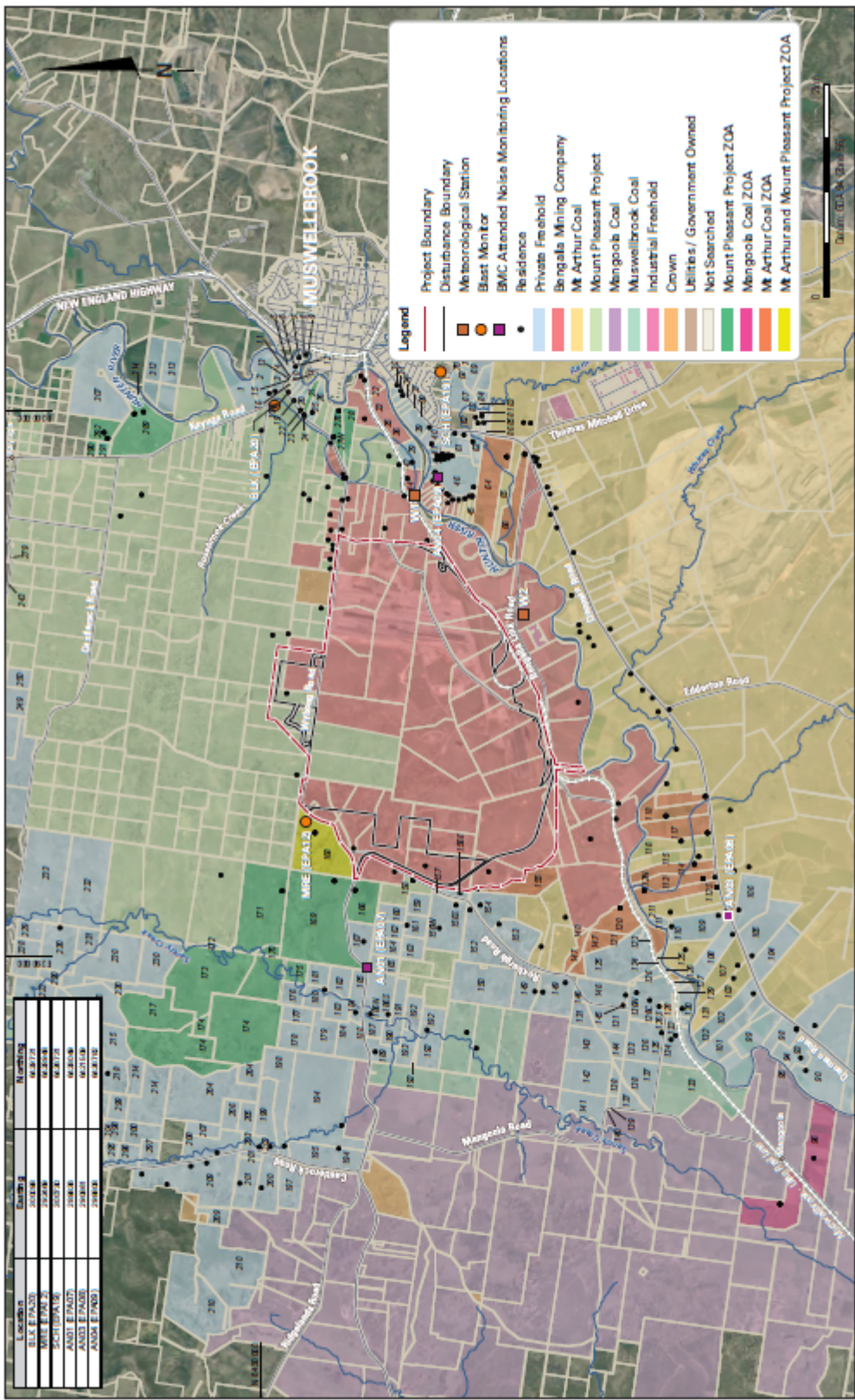




BENGALLA MINE  
EPL 6538 Effluent Quality Monitoring Location

# **Appendix C**

## **EPL 6538 Noise and Blast Monitoring Locations**



Location ID	Location Name	N. Coordinate	E. Coordinate
1	1	56.119	152.220
2	2	56.118	152.219
3	3	56.117	152.218
4	4	56.116	152.217
5	5	56.115	152.216
6	6	56.114	152.215
7	7	56.113	152.214
8	8	56.112	152.213
9	9	56.111	152.212
10	10	56.110	152.211
11	11	56.109	152.210
12	12	56.108	152.209
13	13	56.107	152.208
14	14	56.106	152.207
15	15	56.105	152.206
16	16	56.104	152.205
17	17	56.103	152.204
18	18	56.102	152.203
19	19	56.101	152.202
20	20	56.100	152.201
21	21	56.099	152.200
22	22	56.098	152.199
23	23	56.097	152.198
24	24	56.096	152.197
25	25	56.095	152.196
26	26	56.094	152.195
27	27	56.093	152.194
28	28	56.092	152.193
29	29	56.091	152.192
30	30	56.090	152.191
31	31	56.089	152.190
32	32	56.088	152.189
33	33	56.087	152.188
34	34	56.086	152.187
35	35	56.085	152.186
36	36	56.084	152.185
37	37	56.083	152.184
38	38	56.082	152.183
39	39	56.081	152.182
40	40	56.080	152.181
41	41	56.079	152.180
42	42	56.078	152.179
43	43	56.077	152.178
44	44	56.076	152.177
45	45	56.075	152.176
46	46	56.074	152.175
47	47	56.073	152.174
48	48	56.072	152.173
49	49	56.071	152.172
50	50	56.070	152.171
51	51	56.069	152.170
52	52	56.068	152.169
53	53	56.067	152.168
54	54	56.066	152.167
55	55	56.065	152.166
56	56	56.064	152.165
57	57	56.063	152.164
58	58	56.062	152.163
59	59	56.061	152.162
60	60	56.060	152.161
61	61	56.059	152.160
62	62	56.058	152.159
63	63	56.057	152.158
64	64	56.056	152.157
65	65	56.055	152.156
66	66	56.054	152.155
67	67	56.053	152.154
68	68	56.052	152.153
69	69	56.051	152.152
70	70	56.050	152.151
71	71	56.049	152.150
72	72	56.048	152.149
73	73	56.047	152.148
74	74	56.046	152.147
75	75	56.045	152.146
76	76	56.044	152.145
77	77	56.043	152.144
78	78	56.042	152.143
79	79	56.041	152.142
80	80	56.040	152.141
81	81	56.039	152.140
82	82	56.038	152.139
83	83	56.037	152.138
84	84	56.036	152.137
85	85	56.035	152.136
86	86	56.034	152.135
87	87	56.033	152.134
88	88	56.032	152.133
89	89	56.031	152.132
90	90	56.030	152.131
91	91	56.029	152.130
92	92	56.028	152.129
93	93	56.027	152.128
94	94	56.026	152.127
95	95	56.025	152.126
96	96	56.024	152.125
97	97	56.023	152.124
98	98	56.022	152.123
99	99	56.021	152.122
100	100	56.020	152.121

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