



Mount Thorley Warkworth EPL Monitoring Data

Published 26 October 2022
FOR THE MONTH ENDING 30 September 2022

| | |
|--------------------------------|---|
| Name of Operation | Mount Thorley Coal Loader |
| Environment Protection Licence | 24 |
| Licensee | Mount Thorley Coal Loading Ltd |
| Premises | Mount Thorley Coal Loading Ltd Mount Thorley Road, Mount Thorley Via Singleton NSW 2330 |
| EPL Link | http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=89660&SYSUID=1&LICID=24 |
| Name of Operation | Mount Thorley Operations |
| Environment Protection Licence | 1976 |
| Licensee | Mount Thorley Operations Pty Limited |
| Premises | Mount Thorley Operations Mount Thorley Road Mount Thorley NSW 2330 |
| EPL Link | https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=161559&SYSUID=1&LICID=1976 |
| Name of Operation | Warkworth Coal Mine |
| Environment Protection Licence | 1376 |
| Licensee | Warkworth Mining Ltd |
| Premises | Warkworth Coal Mine Putty Road Mount Thorley NSW 2330 |
| EPL Link | https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=160262&SYSUID=1&LICID=1376 |

1 INTRODUCTION

This report provides a summary of environmental monitoring results for Mount Thorley Warkworth (MTW) in accordance with the requirements of the following Environment Protection Licences (EPL):

- EPL24 – Mount Thorley Coal Loader (MTCL);
- EPL1376 – Warkworth Mining Limited (WML); and
- EPL1976 – Mount Thorley Operations (MTO).

This report includes all monitoring data collected in accordance with the above licences for the period 1 to 30 September 2022.

Monitoring in this report includes:

- Air quality monitoring;
- Surface water monitoring including mine water discharge and effluent quality; and
- Blast monitoring.

Monitoring locations are shown in **Figure 1**.

2 AIR QUALITY

In accordance with the requirements of Condition M2.2 of WML EPL 1376 and MTO EPL 1976, MTW maintains a network of five PM₁₀ monitors.

Results of Particulates (PM₁₀) monitoring are shown in **Table 1**. Results reported represent the 24hr average PM₁₀, derived from 10 minute PM₁₀ values for the period midnight to midnight, for each calendar date during the reporting period. The last sampling date was 30 September 2022 and the data was obtained on 1 October 2022.

TABLE 1: PARTICULATE MATTER <10µm MONITORING

| Date | Unit of Measure | Monitoring Frequency & Capture | Monitoring Point | | | | |
|------------|-------------------|--------------------------------|--|--|--|---|--|
| | | | Warkworth North (EPA ID # 9 - WML EPL 1376) | MTO Boundary (EPA ID # 13 - MTO EPL 1976) | Dragline Crossing (EPA ID # 10 - WML EPL 1376 & MTO EPL 1976) | Heavy Vehicle Bridge (EPA ID # 11 - WML EPL 1376 & MTO EPL 1976) | MTIE (EPA ID # 12 - WML EPL 1376 & EPA ID #19 - MTO EPL 1976) |
| 1/09/2022 | µg/m ³ | Continuous | 17.6 | 9.0 | 22.2 | 12.9 | 13.6 |
| 2/09/2022 | µg/m ³ | | 14.8 | 10.8 | 20.8 | 14.2 | 14.1 |
| 3/09/2022 | µg/m ³ | | 8.7 | 2.6 | 4.5 | 4.2 | 4.4 |
| 4/09/2022 | µg/m ³ | | 9.8 | 2.7 | 3.7 | 3.6 | 4.2 |
| 5/09/2022 | µg/m ³ | | 10.2 | 2.3 | 10.4 | 6.3 | 5.7 |
| 6/09/2022 | µg/m ³ | | 11.2 | 2.8 | 7.0 | 3.6 | 4.5 |
| 7/09/2022 | µg/m ³ | | 13.9 | 3.0 | 9.2 | 4.9 | 4.2 |
| 8/09/2022 | µg/m ³ | | 18.4 | 4.4 | # | 5.6 | 6.1 |
| 9/09/2022 | µg/m ³ | | 11.4 | 4.1 | 11.4 | 6.4 | 7.7 |
| 10/09/2022 | µg/m ³ | | 2.1 | 3.0 | 13.3 | 2.2 | 2.4 |
| 11/09/2022 | µg/m ³ | | 4.3 | 5.1 | 17.5 | 4.8 | 4.4 |
| 12/09/2022 | µg/m ³ | | 4.5 | 3.6 | 14.0 | 5.6 | 5.6 |
| 13/09/2022 | µg/m ³ | | 6.3 | 3.3 | 12.5 | 8.5 | 7.7 |
| 14/09/2022 | µg/m ³ | | 12.2 | 3.7 | 6.5 | 5.0 | 4.9 |
| 15/09/2022 | µg/m ³ | | 15.7 | 8.5 | 13.9 | 11.7 | 13.0 |
| 16/09/2022 | µg/m ³ | | 3.4 | 3.8 | 15.1 | 4.4 | 4.4 |
| 17/09/2022 | µg/m ³ | | 10.5 | 5.4 | 20.6 | 11.1 | 7.2 |
| 18/09/2022 | µg/m ³ | | 3.5 | 3.1 | 15.7 | 3.8 | 4.3 |
| 19/09/2022 | µg/m ³ | | 5.1 | 4.4 | 16.2 | 5.5 | 5.6 |
| 20/09/2022 | µg/m ³ | | 13.2 | 2.9 | 7.9 | 6.0 | 5.2 |
| 21/09/2022 | µg/m ³ | | 15.3 | 6.5 | 11.3 | 8.5 | 7.5 |
| 22/09/2022 | µg/m ³ | | 6.8 | 3.6 | 6.0 | 6.3 | 5.8 |

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| Date | Unit of Measure | Monitoring Frequency & Capture | Monitoring Point | | | | |
|-------------------------|-------------------|--------------------------------|--|--|--|---|--|
| | | | Warkworth North (EPA ID # 9 - WML EPL 1376) | MTO Boundary (EPA ID # 13 - MTO EPL 1976) | Dragline Crossing (EPA ID # 10 - WML EPL 1376 & MTO EPL 1976) | Heavy Vehicle Bridge (EPA ID # 11 - WML EPL 1376 & MTO EPL 1976) | MTIE (EPA ID # 12 - WML EPL 1376 & EPA ID #19 - MTO EPL 1976) |
| 23/09/2022 | µg/m ³ | | 11.1 | 4.1 | 6.9 | 5.2 | 5.0 |
| 24/09/2022 | µg/m ³ | | 13.3 | 9.0 | # | 11.4 | 11.0 |
| 25/09/2022 | µg/m ³ | | 7.9 | 7.0 | 23.8 | 14.8 | 11.5 |
| 26/09/2022 | µg/m ³ | | 14.1 | 8.6 | # | 15.8 | 15.1 |
| 27/09/2022 | µg/m ³ | | 13.9 | 11.7 | 21.9 | 19.6 | 16.4 |
| 28/09/2022 | µg/m ³ | | 7.6 | 5.3 | 19.9 | # | 11.5 |
| 29/09/2022 | µg/m ³ | | 3.8 | 3.3 | # | 4.8 | 2.8 |
| 30/09/2022 | µg/m ³ | | 7.8 | 3.0 | 4.7 | 3.7 | 5.4 |
| Monthly Meaningful Data | | | | | | | |
| September | µg/m ³ | Minimum* | 2.1 | 2.3 | 3.7 | 2.2 | 2.4 |
| September | µg/m ³ | Mean* | 10.0 | 5.0 | 13.1 | 7.7 | 7.4 |
| September | µg/m ³ | Maximum* | 18.4 | 11.7 | 23.8 | 19.6 | 16.4 |
| September | µg/m ³ | Median* | 10.4 | 4.0 | 12.9 | 5.8 | 5.7 |

24 hour data unavailable due to equipment or communications issue causing one or more missing 10 minute values

*Data calculated with missing 10 minute value(s) due to equipment or communication issue

MTIE denotes Mount Thorley Industrial Estate

3 SURFACE WATER

3.1 Mine Water Discharge Monitoring

MTW participates in the Hunter River Salinity Trading Scheme (HRSTS) and maintains two monitoring locations associated with this scheme.

Results of water monitoring undertaken in accordance with HRSTS requirements are detailed in **Table 2** and **Table 3**. The last sampling date was 27 September 2022 and the data was obtained on 29 September 2022.

TABLE 2: MINE WATER DISCHARGE MONITORING - VOLUME AND MASS LIMITS

| Monitoring Location | Unit of measure | Volume/mass Limit | No. of samples required by licence | No. of samples you collected and analysed | Lowest Sample Value | Mean of sample | Highest sample value | Median |
|--|--------------------|-------------------|------------------------------------|---|---------------------|----------------|----------------------|--------|
| Dam 1N Discharge / Point 1 (WML EPL 1376) Dam 1N Discharge Point | Megalitres per day | 100 | 0 | 0 | - | - | - | - |
| Dam 9S Discharge / EPL Point 4 (MTO EPL 1976) Discharge pipe from Dam 9S | Megalitres per day | 100 | 20 | 20 | 2.2 | 32.5 | 75.7 | 34.0 |

TABLE 3: MINE WATER DISCHARGE MONITORING- CONCENTRATION LIMITS

| Discharge Point | Pollutant | Unit of measure | Licence limits | No. of samples required by licence | No. of samples you collected and analysed | Lowest Sample Value | Mean of sample | Highest sample value | Median |
|--|-------------------------|-------------------------------|----------------|------------------------------------|---|---------------------|----------------|----------------------|--------|
| Dam 1N Discharge / Point 1 (WML EPL 1376) Dam 1N Discharge Point | Electrical Conductivity | microsiemens per centimetre | - | 0 | 0 | - | - | - | - |
| | pH | pH | 6.5 - 9.5 | 0 | 0 | - | - | - | - |
| | Total Suspended Solids | milligrams per litre | 120 | 0 | 0 | - | - | - | - |
| Dam 1N Discharge Turbidity Monitoring / Point 25 (WML EPL 1376) Continuous turbidity monitor | Turbidity | nephelometric turbidity units | - | 0 | 0 | - | - | - | - |
| Dam 9S Discharge / EPL Point 4 (MTO EPL 1976) Discharge pipe from Dam 9 | Electrical Conductivity | microsiemens per centimetre | - | Continuous | Continuous | 3706 | 4107 | 4310 | 4157 |
| | pH | pH | 6.5 - 9.5 | 20 | 20 | 8.9 | 8.9 | 9.0 | 8.9 |
| | Total Suspended Solids | milligrams per litre | 120 | 20 | 20 | 14 | 25.8 | 44 | 24 |

3.2 Water Quality Monitoring

MTW undertakes monitoring in accordance with Condition M2.3 of WML EPL 1376 and MTO EPL 1976 as detailed in **Table 4**. Monthly sampling occurred on 26 September 2022 and the data was obtained 12 October 2022.

TABLE 4: WATER QUALITY MONITORING

| Monitoring Location | Pollutant | unit of measure | Monitoring frequency required by licence | No. of samples required by licence | No. of samples collected and analysed | Value(s) |
|--|-------------------------|-----------------------------|--|------------------------------------|---------------------------------------|----------|
| W5 – Loders Creek / EPL Point 3 (MTO EPL 1976) Coal preparation plant access road bridge | Electrical Conductivity | microsiemens per centimetre | Once a month (min. of 4 weeks) | 1 | 1 | 4350 |
| | pH | pH units | Once a month (min. of 4 weeks) | 1 | 1 | 8.9 |
| | Total Suspended Solids | milligrams per litre | Once a month (min. of 4 weeks) | 1 | 1 | 22 |
| W1 – Hunter River / EPL Point 26 (WML EPL 1376) | Electrical Conductivity | microsiemens per centimetre | Once a quarter | 1 | 1 | 605 |
| | pH | pH units | Once a quarter | 1 | 1 | 8.1 |
| | Total Suspended Solids | milligrams per litre | Once a quarter | 1 | 1 | 97 |
| W2 – Hunter River / EPL Point 27 (WML EPL 1376) | Electrical Conductivity | microsiemens per centimetre | Once a quarter | 1 | 1 | 1029 |
| | pH | pH units | Once a quarter | 1 | 1 | 8.5 |
| | Total Suspended Solids | milligrams per litre | Once a quarter | 1 | 1 | 27 |
| W3 – Hunter River / EPL Point 28 (WML EPL 1376) | Electrical Conductivity | microsiemens per centimetre | Once a quarter | 1 | 0 | # |
| | pH | pH units | Once a quarter | 1 | 0 | # |
| | Total Suspended Solids | milligrams per litre | Once a quarter | 1 | 0 | # |
| W5 – Loders Creek / EPL Point 29 (WML EPL 1376) | Electrical Conductivity | microsiemens per centimetre | Once a quarter | 1 | 1 | 4350 |
| | pH | pH units | Once a quarter | 1 | 1 | 8.9 |
| | Total Suspended Solids | milligrams per litre | Once a quarter | 1 | 1 | 22 |
| WW5 – Dights Creek / EPL Point 30 (WML EPL 1376) | Electrical Conductivity | microsiemens per centimetre | Once a quarter | 1 | 1 | 5830 |

| Monitoring Location | Pollutant | unit of measure | Monitoring frequency required by licence | No. of samples required by licence | No. of samples collected and analysed | Value(s) |
|---|-------------------------|-----------------------------|--|------------------------------------|---------------------------------------|----------|
| | pH | pH units | Once a quarter | 1 | 1 | 7.5 |
| | Total Suspended Solids | milligrams per litre | Once a quarter | 1 | 1 | 8 |
| SW40 – Wollombi Brook Downstream / EPL Point 31 (WML EPL 1376) | Electrical Conductivity | microsiemens per centimetre | Once a quarter | 1 | 1 | 731 |
| | pH | pH units | Once a quarter | 1 | 1 | 7.5 |
| | Total Suspended Solids | milligrams per litre | Once a quarter | 1 | 1 | 5 |
| Wollombi Brook / EPL Point 32 (WML EPL 1376) | Electrical Conductivity | microsiemens per centimetre | Once a quarter | 1 | 1 | 520 |
| | pH | pH units | Once a quarter | 1 | 1 | 7.4 |
| | Total Suspended Solids | milligrams per litre | Once a quarter | 1 | 1 | 6 |
| Wollombi Brook Upstream / EPL Point 33 (WML EPL 1376) | Electrical Conductivity | microsiemens per centimetre | Once a quarter | 1 | 1 | 509 |
| | pH | pH units | Once a quarter | 1 | 1 | 7.4 |
| | Total Suspended Solids | milligrams per litre | Once a quarter | 1 | 1 | <5 |

- Sample unable to be collected due to insufficient water or unsafe access

3.3 Effluent Quality Monitoring

Monitoring is undertaken in accordance with Condition M2.3 of WML EPL 1376 and MTO EPL 1976 as detailed in **Table 5**. Quarterly sampling occurred 21 September 2022 and the data was obtained 12 October 2022.

TABLE 5: EFFLUENT QUALITY MONITORING

| Monitoring Location | Pollutant | unit of measure | Monitoring frequency required by licence | No. of samples required by licence | No. of samples collected and analysed | Value |
|---|------------------|--|--|------------------------------------|---------------------------------------|---------|
| North Pit North Crib Hut Envirocycle / EPL Point 14 (WML EPL 1376) | Faecal Coliforms | Colony forming units per 100 millilitres | Once a quarter | 1 | 1 | <910 |
| | pH | pH units | Once a quarter | 1 | 1 | 7.44 |
| Main Warkworth Staging Pond / EPL Point 15 (WML EPL 1376) | Faecal Coliforms | Colony forming units per 100 millilitres | Once a quarter | 1 | 1 | 1600 |
| | pH | pH units | Once a quarter | 1 | 1 | 7.79 |
| Warkworth Admin Envirocycle / EPL Point 16 (WML EPL 1376) | Faecal Coliforms | Colony forming units per 100 millilitres | Once a quarter | 1 | 1 | 280,000 |
| | pH | pH units | Once a quarter | 1 | 1 | 7.31 |
| West Pit South Crib Hut Envirocycle / EPL Point 17 (WML EPL 1376) | Faecal Coliforms | Colony forming units per 100 millilitres | Once a quarter | 1 | 1 | <91 |
| | pH | pH units | Once a quarter | 1 | 1 | 7.42 |
| Warkworth Medical Centre Envirocycle / EPL Point 18 (WML EPL 1376) | Faecal Coliforms | Colony forming units per 100 millilitres | Once a quarter | 1 | 1 | ~4300 |
| | pH | pH units | Once a quarter | 1 | 1 | 7.49 |
| Dam 1S / EPL Point 18 (MTO EPL 1976) | Faecal Coliforms | Colony forming units per 100 millilitres | Once a quarter | 1 | 1 | <9 |
| | pH | pH units | Once a quarter | 1 | 1 | 9.51 |

4 BLAST MONITORING

In accordance with the requirements of Conditions M7.1 (WML EPL 1376) and M8.1 (MTO EPL 1976), MTW maintains a network of blast monitors to measure airblast overpressure and ground vibration for all blasts carried out at MTW. Blast monitoring results are detailed in **Table 6** (Airblast Overpressure) and **Table 7** (Ground Vibration). The last date sampled was on 30 September 2022. The data was obtained on 1 October 2022.

TABLE 6: BLAST MONITORING (AIRBLAST OVERPRESSURE)

| Blast ID | Date and Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | Monitoring Point | | | | |
|----------------------------|------------------|-----------------|--------------------------------|---------------|----------------|---|--|--|---|--|
| | | | | 95% of Blasts | 100% of Blasts | Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976) | Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976) | Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976) | Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976) | Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976) |
| w37-wnb-pr4 | 1/09/2022 12:50 | dB(L) | All Blasts 100% | 115 | 120 | 98.5 | 97.1 | 91.3 | 94.7 | 99.3 |
| n47-wnd-ps1a | 2/09/2022 12:26 | dB(L) | | 115 | 120 | 95.8 | 86.5 | 92.6 | 87.3 | 84.7 |
| n40-bfa-ptg4 | 6/09/2022 12:44 | dB(L) | | 115 | 120 | 94.8 | 95.6 | 91.1 | 102.8 | 87.6 |
| n43-gmb-ps1c | 6/09/2022 13:00 | dB(L) | | 115 | 120 | 92.3 | 93.9 | 94.6 | 110.5 | 82.8 |
| n43-gmb-pr2 | 6/09/2022 13:00 | dB(L) | | 115 | 120 | 97.5 | 99.3 | 108.4 | 110.5 | 92.6 |
| w45-rcd-pr1 & w45-rcd-ps1b | 9/09/2022 12:20 | dB(L) | | 115 | 120 | 106.0 | 106.4 | 102.8 | 95.3 | 104.3 |
| w32-wwf-maj-co1 | 10/09/2022 10:55 | dB(L) | | 115 | 120 | 88.8 | 103.4 | 101.7 | 100.4 | 102.4 |
| w32-wwf-maj-co2 | 12/09/2022 12:46 | dB(L) | | 115 | 120 | 97.8 | 93.3 | 95.8 | 93.1 | 100.4 |
| w34-bfa-ps1h | 13/09/2022 13:11 | dB(L) | | 115 | 120 | 90.4 | 93.7 | 99.1 | 93.0 | 88.3 |

| Blast ID | Date and Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | Monitoring Point | | | | |
|------------------------------|------------------|-----------------|--------------------------------|---------------|----------------|---|--|--|---|--|
| | | | | 95% of Blasts | 100% of Blasts | Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976) | Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976) | Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976) | Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976) | Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976) |
| n39-wwa-ptg2 | 14/09/2022 12:42 | dB(L) | | 115 | 120 | 93.2 | 92.5 | 98.6 | 97.6 | 90.9 |
| w32-mac-j-co1 | 15/09/2022 11:39 | dB(L) | | 115 | 120 | 98.4 | 98.3 | 94.1 | 103.2 | 95.4 |
| n43-gmb-pr3 & n43-gmb-ps1d | 15/09/2022 11:40 | dB(L) | | 115 | 120 | 98.8 | 99.6 | 100.9 | 108.6 | 92.5 |
| w32-mac-j-co2 & w33-wwe-ps1b | 16/09/2022 12:22 | dB(L) | | 115 | 120 | 82.8 | 100.3 | 110.4 | 96.0 | 109.5 |
| w32-wwe-maa-co3 | 20/09/2022 12:08 | dB(L) | | 115 | 120 | 95.7 | 95.2 | 106.4 | 106.9 | 91.8 |
| n39-bfb-h-co1 & n39-wwa-ptg3 | 20/09/2022 13:04 | dB(L) | | 115 | 120 | 94.2 | 97.2 | 89.9 | 105.5 | 88.5 |
| n47-wnb-pr1 & n47-wnd-ps1b | 21/09/2022 12:21 | dB(L) | | 115 | 120 | 99.9 | 101.8 | 94.3 | 102.6 | 96.2 |
| w33-wwe-ps1c | 21/09/2022 13:12 | dB(L) | | 115 | 120 | 97.3 | 92.0 | 94.1 | 89.8 | 91.4 |
| w38-wbb-ptg1 | 23/09/2022 12:36 | dB(L) | | 115 | 120 | 99.3 | 91.6 | 94.7 | 85.0 | 100.3 |
| n40-bfa-ptg5 | 27/09/2022 11:57 | dB(L) | | 115 | 120 | 92.4 | 94.6 | 105.8 | 98.3 | 80.0 |
| w33-wwe-ps1d | 28/09/2022 12:37 | dB(L) | | 115 | 120 | 102.4 | 103.2 | 94.0 | 96.0 | 106.4 |
| n43-gmb-pr4 & n43-gmb-ps1e | 29/09/2022 12:39 | dB(L) | | 115 | 120 | 94.7 | 103.5 | 96.8 | 109.7 | 101.7 |
| w32-wwe-maa-co4 | 30/09/2022 12:26 | dB(L) | | 115 | 120 | 92.0 | 106.3 | 104.3 | 102.0 | 112.7 |
| w38-bfa-pr8 | 30/09/2022 12:37 | dB(L) | | 115 | 120 | 98.0 | 103.1 | 106.5 | 95.5 | 111.8 |

| Blast ID | Date and Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | Monitoring Point | | | | |
|--------------------------------|---------------|-----------------|--------------------------------|---------------|----------------|---|--|--|---|--|
| | | | | 95% of Blasts | 100% of Blasts | Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976) | Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976) | Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976) | Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976) | Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976) |
| Monthly Meaningful Data | | | | | | | | | | |
| Minimum | September | dB(L) | | 115 | 120 | 82.8 | 86.5 | 89.9 | 85.0 | 80.0 |
| Mean | September | dB(L) | | 115 | 120 | 95.7 | 97.8 | 98.6 | 99.3 | 96.2 |
| Maximum | September | dB(L) | | 115 | 120 | 106.0 | 106.4 | 110.4 | 110.5 | 112.7 |
| Median | September | dB(L) | | 115 | 120 | 95.8 | 97.2 | 96.8 | 98.3 | 95.4 |

TABLE 7: BLAST MONITORING (GROUND VIBRATION)

| Blast ID | Date and Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | Monitoring Point | | | | |
|--------------|-----------------|-----------------|--------------------------------|---------------|----------------|---|--|--|---|--|
| | | | | 95% of Blasts | 100% of Blasts | Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976) | Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976) | Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976) | Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976) | Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976) |
| w37-wnb-pr4 | 1/09/2022 12:50 | mm/s | | 5 | 10 | 1.02 | 0.45 | 0.06 | 0.37 | 0.36 |
| n47-wnd-ps1a | 2/09/2022 12:26 | mm/s | | 5 | 10 | 0.41 | 0.67 | 0.09 | 0.46 | 0.57 |

| Blast ID | Date and Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | Monitoring Point | | | | |
|------------------------------|------------------|-----------------|--------------------------------|---------------|----------------|---|--|--|---|--|
| | | | | 95% of Blasts | 100% of Blasts | Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976) | Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976) | Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976) | Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976) | Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976) |
| n40-bfa-ptg4 | 6/09/2022 12:44 | mm/s | All Blasts 100% | 5 | 10 | 0.06 | 0.05 | 0.03 | 0.42 | 0.04 |
| n43-gmb-ps1c | 6/09/2022 13:00 | mm/s | | 5 | 10 | 1.26 | 1.97 | 0.14 | 2.06 | 1.08 |
| n43-gmb-pr2 | 6/09/2022 13:00 | mm/s | | 5 | 10 | 1.26 | 1.97 | 0.14 | 2.06 | 1.08 |
| w45-rcd-pr1 & w45-rcd-ps1b | 9/09/2022 12:20 | mm/s | | 5 | 10 | 3.47 | 1.56 | 0.21 | 1.06 | 2.01 |
| w32-wwf-maj-co1 | 10/09/2022 10:55 | mm/s | | 5 | 10 | 0.23 | 0.11 | 0.05 | 0.38 | 0.15 |
| w32-wwf-maj-co2 | 12/09/2022 12:46 | mm/s | | 5 | 10 | 0.15 | 0.12 | 0.03 | 0.19 | 0.12 |
| w34-bfa-ps1h | 13/09/2022 13:11 | mm/s | | 5 | 10 | 0.43 | 0.41 | 0.13 | 0.54 | 0.32 |
| n39-wwa-ptg2 | 14/09/2022 12:42 | mm/s | | 5 | 10 | 0.06 | 0.13 | 0.02 | 0.22 | 0.06 |
| w32-mac-j-co1 | 15/09/2022 11:39 | mm/s | | 5 | 10 | 0.06 | 0.04 | 0.03 | 0.18 | 0.05 |
| n43-gmb-pr3 & n43-gmb-ps1d | 15/09/2022 11:40 | mm/s | | 5 | 10 | 1.06 | 2.06 | 0.14 | 1.36 | 1.01 |
| w32-mac-j-co2 & w33-wwc-ps1b | 16/09/2022 12:22 | mm/s | | 5 | 10 | 0.29 | 0.22 | 0.07 | 0.43 | 0.16 |
| w32-wwc-maa-co3 | 20/09/2022 12:08 | mm/s | | 5 | 10 | 0.16 | 0.13 | 0.04 | 0.36 | 0.16 |
| n39-bfb-h-co1 & n39-wwa-ptg3 | 20/09/2022 13:04 | mm/s | | 5 | 10 | 0.08 | 0.10 | 0.03 | 0.19 | 0.05 |
| n47-wnb-pr1 & n47-wnd-ps1b | 21/09/2022 12:21 | mm/s | | 5 | 10 | 0.78 | 1.55 | 0.13 | 0.77 | 0.52 |

MTW EPL Monitoring Data
FOR THE MONTH ENDING 30 September 2022

| Blast ID | Date and Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | Monitoring Point | | | | |
|--------------------------------|------------------|-----------------|--------------------------------|---------------|----------------|---|--|--|---|--|
| | | | | 95% of Blasts | 100% of Blasts | Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976) | Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976) | Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976) | Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976) | Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976) |
| w33-wwe-ps1c | 21/09/2022 13:12 | mm/s | | 5 | 10 | 0.70 | 0.68 | 0.15 | 0.60 | 0.52 |
| w38-wbb-ptg1 | 23/09/2022 12:36 | mm/s | | 5 | 10 | 0.03 | 0.03 | 0.03 | 0.16 | 0.03 |
| n40-bfa-ptg5 | 27/09/2022 11:57 | mm/s | | 5 | 10 | 0.06 | 0.08 | 0.03 | 0.61 | 0.04 |
| w33-wwe-ps1d | 28/09/2022 12:37 | mm/s | | 5 | 10 | 1.12 | 0.79 | 0.21 | 2.87 | 1.07 |
| n43-gmb-pr4 & n43-gmb-ps1e | 29/09/2022 12:39 | mm/s | | 5 | 10 | 0.83 | 0.79 | 0.10 | 1.41 | 0.72 |
| w32-wwe-maa-co4 | 30/09/2022 12:26 | mm/s | | 5 | 10 | 0.03 | 0.03 | 0.02 | 0.90 | 0.02 |
| w38-bfa-pr8 | 30/09/2022 12:37 | mm/s | | 5 | 10 | 0.47 | 0.46 | 0.08 | 0.30 | 0.67 |
| Monthly Meaningful Data | | | | | | | | | | |
| Minimum | September | mm/s | | 5 | 10 | 0.03 | 0.03 | 0.02 | 0.16 | 0.02 |
| Mean | September | mm/s | | 5 | 10 | 0.61 | 0.63 | 0.09 | 0.78 | 0.47 |
| Maximum | September | mm/s | | 5 | 10 | 3.47 | 2.06 | 0.21 | 2.87 | 2.01 |
| Median | September | mm/s | | 5 | 10 | 0.41 | 0.41 | 0.07 | 0.46 | 0.32 |

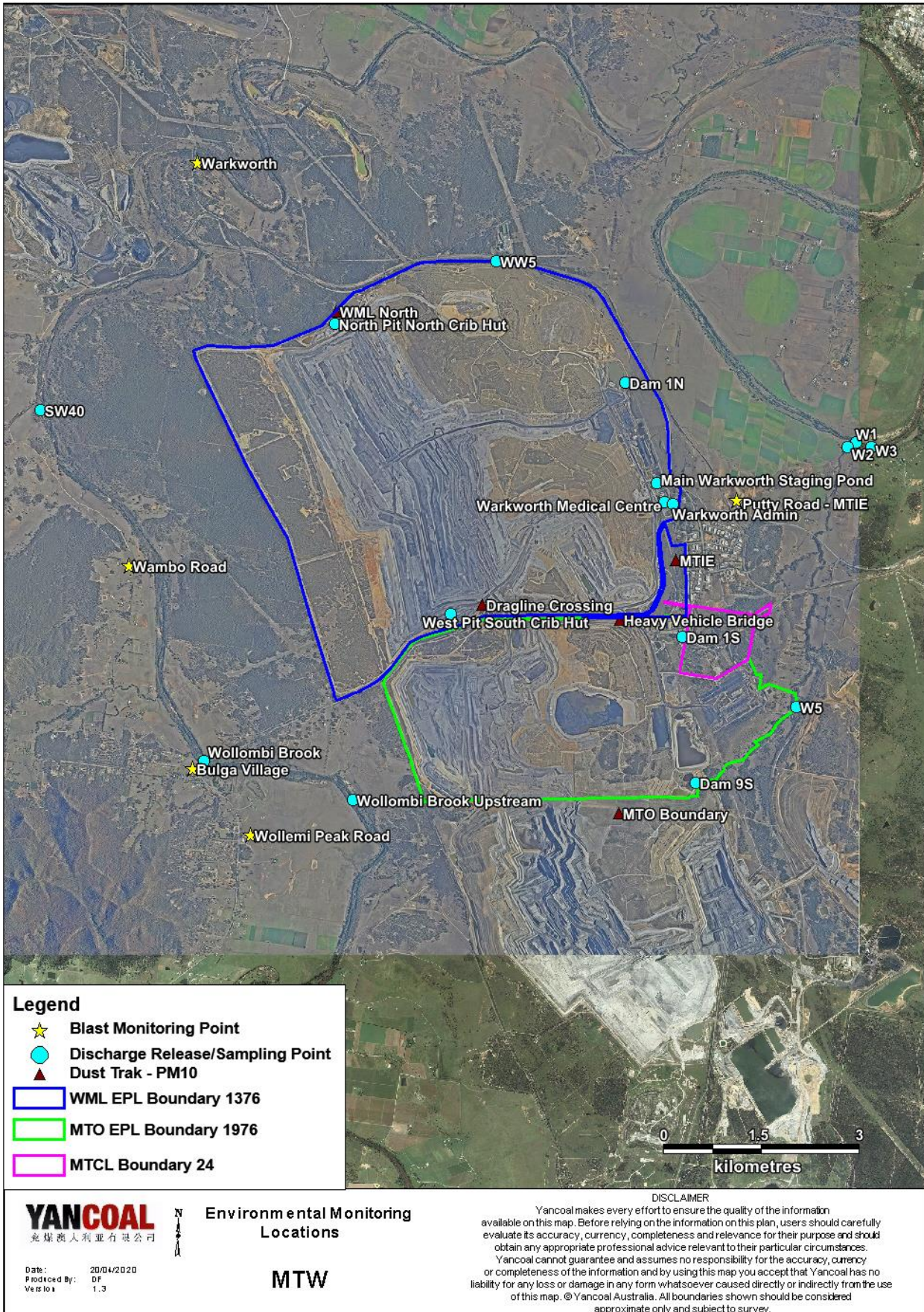


Figure 1 : Mount Thorley Warkworth Environmental Monitoring Locations