



# Monthly Environmental Monitoring Report

Yancoal Mount Thorley Warkworth
February 2021

# **CONTENTS**

| 1.0    | INT   | FRODUCTION                         | Δ  |
|--------|-------|------------------------------------|----|
| 2.0    |       | R QUALITY                          |    |
| 2.0    | AIN   | Meteorological Monitoring          |    |
|        | 1 1   |                                    |    |
|        | .1.1  | Rainfall                           |    |
|        | .1.2  |                                    |    |
| 2.2    |       | Depositional Dust                  |    |
| 2.3    |       | Suspended Particulates             |    |
| 2.     | .3.1  | HVAS PM <sub>10</sub> Results      |    |
| 2.     | .3.2  | TSP Results                        | 7  |
| 2.     | .3.3  | Real Time PM <sub>10</sub> Results | 7  |
| 2.     | .3.4  | Real Time Alarms for Air Quality   | 7  |
| 3.0    | WA    | ATER QUALITY                       | 8  |
| 3.1    |       | Surface Water                      | 8  |
| 3.2 (  | Grou  | undwater Monitoring                | 8  |
| 3.     | .3 HF | RSTS Discharge                     | 8  |
| 4.0    | BLA   | AST MONITORING                     | 9  |
| 4.1    |       | Blast Monitoring Results           | 9  |
| 5.0    | NO    | NSE                                | 12 |
| 5.1    | Attei | ended Noise Monitoring Results     | 12 |
| 5.1.1  |       | WML Noise Assessment               |    |
| 5.1.3  |       | MTO Noise Assessment               |    |
| 5.1.4  | -     | NPfI Low Frequency Assessment      |    |
| 5.2    | •     | Noise Management Measures          |    |
|        | ODI   | ERATIONAL DOWNTIME                 |    |
| 6.0    |       |                                    |    |
|        |       | SILITATION                         |    |
|        |       | ONMENTAL INCIDENTS                 |    |
| 9.0 CO | MPL   | LAINTS                             | 18 |
| Annen  | div 4 | A: Meteorological Data             | 19 |

# **Figures**

| Figure 1: Rainfall Trend YTD   | 4  |
|--|----|
| Figure 2: Charlton Ridge Wind Rose – February 2021   | 4  |
| Figure 3: Air Quality Monitoring Locations   | 5  |
| Figure 4: Depositional Dust – February 2021  | 6  |
| Figure 5: Individual PM10 Results – February 2021  | 6  |
| Figure 6: Annual Average PM <sub>10</sub> – February 2021  | 7  |
| Figure 7: Annual Average Total Suspended Particulates – February 2021  | 7  |
| Figure 8: Real Time PM₁0 daily 24hr average (line graphs) and YTD annual average (column graphs) – February 2021 | 8  |
| Figure 9: Abbey Green Blast Monitoring Results – February 2021   | 9  |
| Figure 10: Bulga Village Blast Monitoring Results – February 2021  | 9  |
| Figure 11: MTIE Blast Monitoring Results – February 2021   | 10 |
| Figure 12: Wollemi Peak Road Blast Monitoring Results – February 2021  | 10 |
| Figure 13: Wambo Road Blast Monitoring Results – February 2021   | 10 |
| Figure 14: Warkworth Blast Monitoring Results – February 2021  | 10 |
| Figure 15: MTW Blast Monitoring Location Plan  | 11 |
| Figure 16: Noise Monitoring Location Plan  | 16 |
| Figure 17: Operational Downtime by Equipment Type –February 2021   | 17 |
| Figure 18: Rehabilitation YTD – February 2021  | 18 |
| Tables   |    |
| Table 1: Monthly Rainfall MTW  | 4  |
| Table 2: Blasting Limits   | 9  |
| Table 3: L <sub>Aeq, 15 minute</sub> Warkworth Impact Assessment Criteria – February 2021                        | 12 |
| Table 4: LA1, 1 minute Warkworth - Impact Assessment Criteria – February 2021                                    | 12 |
| Table 5: L <sub>Aeq, 15minute</sub> Mount Thorley - Impact Assessment Criteria — February 2021                   | 13 |
| Table 6: L <sub>A1, 1Minute</sub> Mount Thorley - Impact Assessment Criteria – February 2021                     | 13 |
| Table 7: Warkworth Low Frequency Noise Assessment – February 2021  | 14 |
| Table 8: Mount Thorley Operations Low Frequency Noise Assessment – February 2021                                 | 15 |
| Table 9: Supplementary Attended Noise Monitoring Data – February 2021  | 17 |
| Table 10: Complaints Summary YTD   | 18 |
| Table 11: Meteorological Data – Charlton Ridge Meteorological Station – February 2021                            | 20 |
|  |    |

# **Revision History**

| Version No. | Version Details                       | Document Status | Date       |
|-------------|---------------------------------------|-----------------|------------|
| 1.0         | Environment and Community Coordinator | Final           | 12/02/2021 |

## 1.0 INTRODUCTION

This report has been compiled to provide a monthly summary of environmental monitoring results for Mount Thorley Warkworth (MTW). This report includes all monitoring data collected for the period 1 February to 28 February 2021.

# 2.0 AIR QUALITY

# 2.1 Meteorological Monitoring

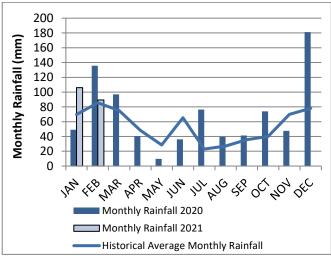
Meteorological data is collected at MTW's 'Charlton Ridge' meteorological station (refer to **Figure 3**: Air Quality Monitoring Locations).

#### 2.1.1 Rainfall

Rainfall for the reporting period is summarised in **Table 1**. The year-to-date monthly rainfall totals, 2021 monthly rainfall totals and historical average monthly rainfall trend are shown in **Figure 1**.

Table 1: Monthly Rainfall MTW

| 2021     | Monthly Rainfall<br>(mm) | Cumulative<br>Rainfall (mm) |
|----------|--------------------------|-----------------------------|
| February | 89.4                     | 195.4                       |



Note: The historical average monthly rainfall is calculated from 2007 to 2020 monthly totals

Figure 1: Rainfall Trend YTD

#### 2.1.2 Wind Speed and Direction

Winds from the southeast were dominant during the reporting period as shown in **Figure 2.** 

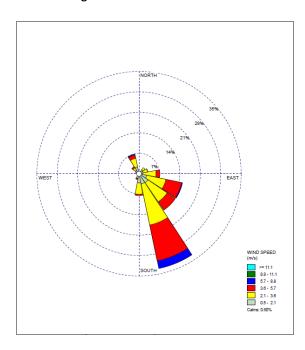


Figure 2: Charlton Ridge Wind Rose - February 2021

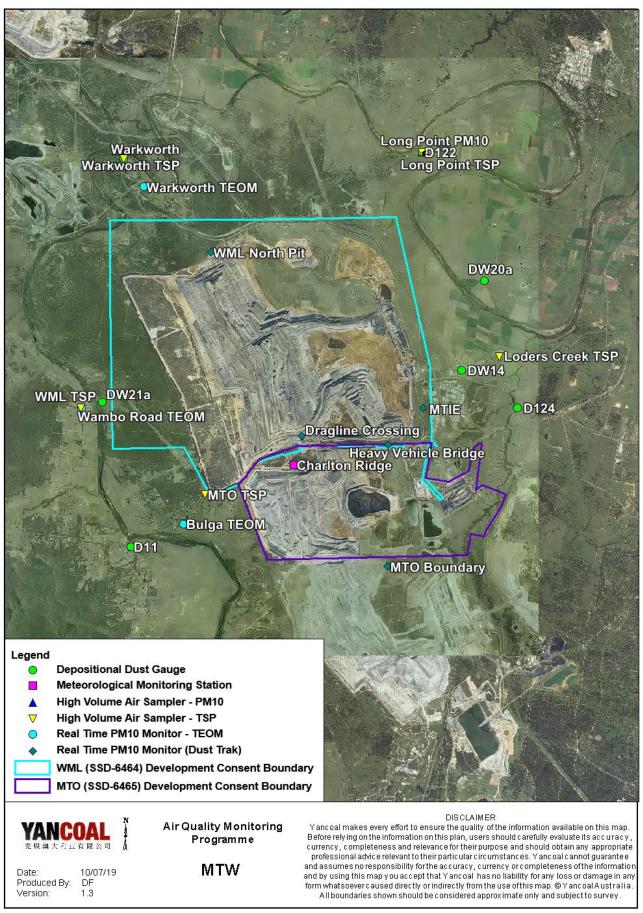


Figure 3: Air Quality Monitoring Locations

# 2.2 Depositional Dust

To monitor air quality, MTW operates and maintains a network of seven depositional dust gauges, situated on private and mine owned land surrounding MTW.

During the reporting period the Warkworth monitor recorded a monthly result above the long-term impact assessment criteria of 4.0 g/m² per month. There is no evidence to suggest that the Warkworth result is contaminated. Accordingly, the result will be included in the annual average calculation.

**Figure 4** displays insoluble solids results from depositional dust gauges during the reporting period compared against the year-to-date average and the annual impact assessment criteria.

An annual assessment of MTW's compliance with the Long-Term Impact Assessment Criteria will be provided in the 2021 Annual Review Report.

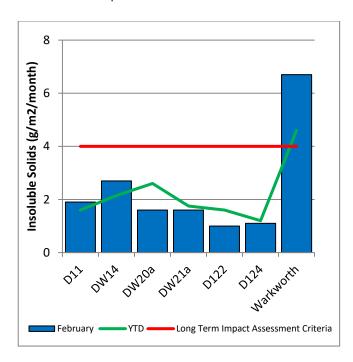


Figure 4: Depositional Dust - February 2021

#### 2.3 Suspended Particulates

Suspended particulates are measured by a network of High Volume Air Samplers (HVAS) measuring Total Suspended Particulates (TSP) and Particulate Matter <10 $\mu$ m (PM<sub>10</sub>). The location of these monitors can be found in **Figure 3**. Each HVAS was run for 24 hours on a six-day cycle in accordance with EPA requirements.

#### 2.3.1 HVAS PM<sub>10</sub> Results

Figure 5 shows the individual  $PM_{10}$  results at each monitoring station against the short-term impact assessment criteria of  $50\mu g/m^3$ .

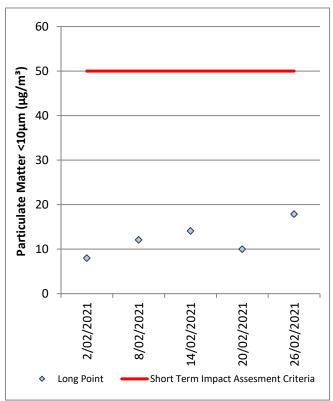


Figure 5: Individual PM10 Results - February 2021

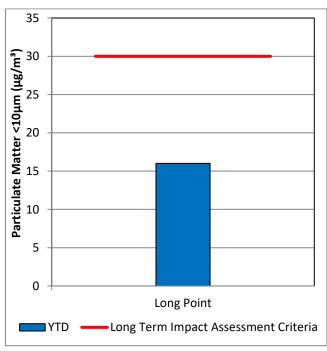


Figure 6 shows the annual average PM10 result against the long term impact assessment criteria.

An assessment of MTW's MTW's compliance with the Long-Term Impact Assessment Criteria will be provided in the 2021 Annual Review Report.

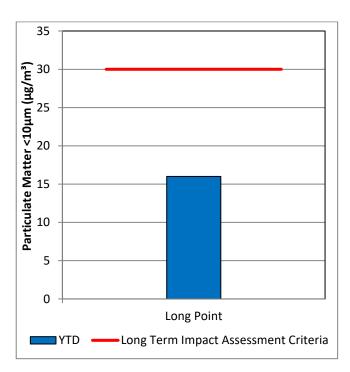


Figure 6: Annual Average PM<sub>10</sub> - February 2021

#### 2.3.2 TSP Results

**Figure 7** shows the annual average TSP results compared against the long-term impact assessment criteria of  $90\mu g/m^3$ . An assessment of MTW's compliance with the Long-Term Impact Assessment Criteria will be provided in the 2021 Annual Review Report.

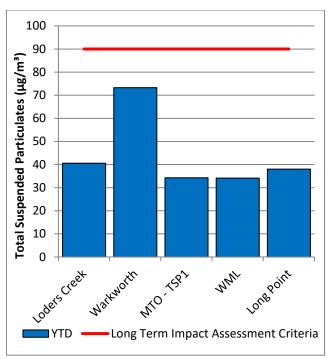


Figure 7: Annual Average Total Suspended Particulates – February 2021

#### 2.3.3 Real Time PM<sub>10</sub> Results

MTW maintains a network of real time  $PM_{10}$  monitors. The real time air quality monitoring stations continuously log information and transmit data to a central database, generating internal alerts when particulate matter levels exceed internal trigger limits.

Results for real time dust sampling are shown in **Figure 8**, including the daily 24-hour average  $PM_{10}$  result and the annual  $PM_{10}$  average.

Data was not available on 9 February 2021 from the Wambo Road monitor due to a communications issue.

#### 2.3.4 Real Time Alarms for Air Quality

During February, the real time monitoring system generated 23 automated air quality related alerts, including 8 alerts for adverse meteorological conditions and 15 alerts for elevated  $PM_{10}$  levels

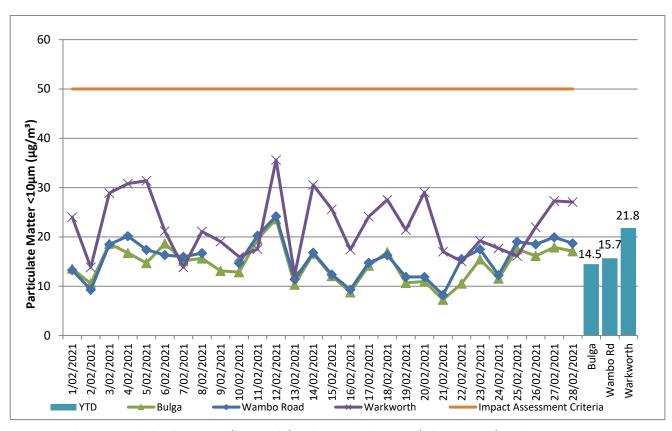


Figure 8: Real Time PM<sub>10</sub> daily 24hr average (line graphs) and YTD annual average (column graphs) – February 2021

# 3.0 WATER QUALITY

MTW maintains a network of surface water and groundwater monitoring sites.

#### 3.1 Surface Water

Monitoring is conducted at mine site dams and surrounding natural watercourses.

Surface water courses are sampled on a monthly or quarterly sampling regime. Water quality is evaluated through the parameters of pH, Electrical Conductivity (EC) and Total Suspended Solids (TSS). The Hunter River and the Wollombi Brook are sampled both upstream and downstream of mining operations, to record background water quality and to monitor the potential impact of mining on the river system. Other Hunter River tributaries are also monitored.

Results of monitoring are reported quarterly, next available in the March 2021 report.

# 3.2 Groundwater Monitoring

Groundwater monitoring is undertaken on a quarterly basis in accordance with the MTW Groundwater Monitoring Programme.

Groundwater results are reported quarterly, next available in the March 2021 report.

#### 3.3 HRSTS Discharge

MTW participates in the Hunter River Salinity Trading Scheme (HRSTS), allowing discharge from licensed discharge points located at Dam 1N and Dam 9S. Discharges can only take place subject to HRSTS regulations.

During the reporting period no water was discharged under the HRSTS.

#### 4.0 BLAST MONITORING

MTW have a network of six blast monitoring units. These are located at nearby privately owned residences and function as regulatory compliance monitors.

The location of these monitors can be found in Figure 15.

# 4.1 Blast Monitoring Results

During February 2021, 15 blasts were initiated at MTW. Figure 9 to Figure 14 show the blast monitoring results for the reporting period against the impact assessment criteria. The criteria are summarised in Table 2.

**Table 2: Blasting Limits** 

| Airblast Overpressure (dB(L)) | Comments  |
|-------------------------------|---|
| 115                           | 5% of the total number of blasts in a 12 month period at WML or MTO           |
| 120                           | 0%  |
|                               |   |
| Ground Vibration (mm/s)       | Comments  |
| Ground Vibration (mm/s) 5     | Comments  5% of the total number of blasts in a 12 month period at WML or MTO |

During the reporting period no blasts exceeded the 115 dB(L) 5% threshold for airblast overpressure or 5mm/s 5% criteria for ground vibration.

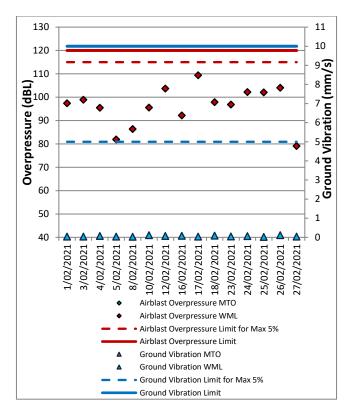


Figure 9: Abbey Green Blast Monitoring Results - February 2021

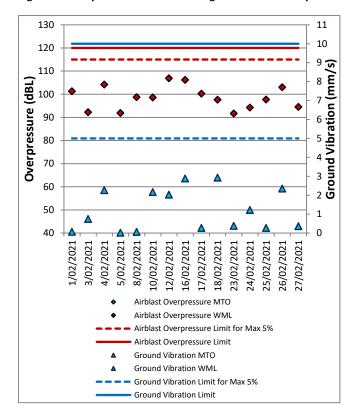
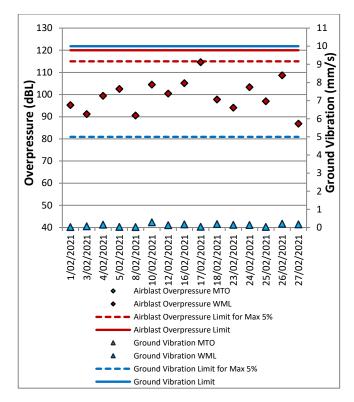


Figure 10: Bulga Village Blast Monitoring Results – February 2021



130 11 120 Ground Vibration (mm/s) 110 8 100 Overpressure 90 70 3 60 2 Δ 50 1 Δ 40 8/02/2021 10/02/2021 12/02/2021 12/02/2021 11/02/2021 18/02/2021 25/02/2021 3/02/2021 5/02/2021 26/02/2021 1/02/2021 1/02/2021 23/02/2021 24/02/2021 27/02/2021 Airblast Overpressure WML Airblast Overpressure Limit for Max 5% Airblast Overpressure Limit Ground Vibration MTO Ground Vibration WML Ground Vibration Limit for Max 5% Ground Vibration Limit

Figure 11: MTIE Blast Monitoring Results - February 2021

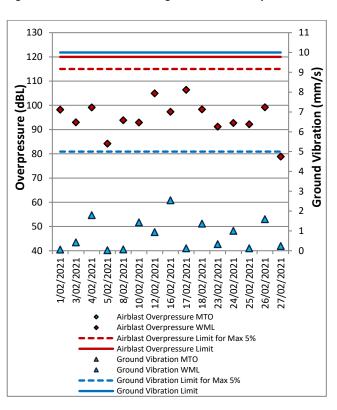


Figure 12: Wollemi Peak Road Blast Monitoring Results – February 2021

Figure 13: Wambo Road Blast Monitoring Results – February 2021

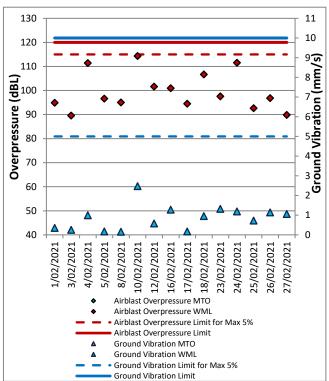


Figure 14: Warkworth Blast Monitoring Results – February 2021



Figure 15: MTW Blast Monitoring Location Plan

#### 5.0 NOISE

Routine attended noise monitoring is carried out in accordance with the MTW Noise Management Plan. A review against EIS predictions will be reported in the Annual Review. The purpose of the noise surveys is to quantify and describe the acoustic environment around the site and compare results with specified limits. Real time noise monitoring also occurs at five sites surrounding MTW. Noise monitoring locations are displayed in **Figure 16**.

# **5.1 Attended Noise Monitoring Results**

Attended monitoring was conducted at receiver locations surrounding MTW on the night of 17 February 2021. All measurements complied with the relevant criteria. Results are detailed in **Table 3 to Table 6.** 

#### 5.1.1 WML Noise Assessment

Compliance assessments undertaken against the WML noise criteria are presented in Tables 3 and 4.

Table 3: L<sub>Aeq, 15 minute</sub> Warkworth Impact Assessment Criteria – February 2021

| Location      | Date and Time    | Wind Speed<br>(m/s) | Stability<br>Class | Criterion<br>dB(A) | Criterion<br>Applies? <sup>1</sup> | WML L <sub>Aeq</sub><br>dB <sup>2,3,4</sup> | Exceedance <sup>3,5</sup> |
|---------------|------------------|---------------------|--------------------|--------------------|------------------------------------|---|---------------------------|
| Bulga RFS     | 17/02/2021 22:47 | 3.5                 | D                  | 37                 | No                                 | IA  | NA                        |
| Bulga Village | 17/02/2021 22:08 | 4.1                 | D                  | 38                 | No                                 | <25   | NA                        |
| Gouldsville   | 17/02/2021 21:33 | 3.5                 | D                  | 38                 | No                                 | 29  | NA                        |
| Inlet Rd      | 17/02/2021 21:21 | 3.6                 | D                  | 37                 | No                                 | 25  | NA                        |
| Inlet Rd West | 17/02/2021 21:00 | 3.6                 | D                  | 35                 | No                                 | 29  | NA                        |
| Long Point    | 17/02/2021 21:07 | 3.6                 | D                  | 35                 | No                                 | IA  | NA                        |
| South Bulga   | 17/02/2021 23:35 | 3.8                 | D                  | 35                 | No                                 | IA  | NA                        |
| Wambo Road    | 17/02/2021 21:45 | 3.5                 | D                  | 38                 | No                                 | 33  | NA                        |

Notes:

Table 4: L<sub>A1, 1 minute</sub> Warkworth - Impact Assessment Criteria – February 2021

| Location      | Date and Time    | Wind Speed<br>(m/s) | Stability<br>Class | Criterion<br>dB(A) | Criterion<br>Applies? <sup>1</sup> | WML L <sub>A1, 1min</sub><br>dB <sup>2,3,4</sup> | Exceedance <sup>3,5</sup> |
|---------------|------------------|---------------------|--------------------|--------------------|------------------------------------|--|---------------------------|
| Bulga RFS     | 17/02/2021 22:47 | 3.5                 | D                  | 47                 | No                                 | IA   | NA                        |
| Bulga Village | 17/02/2021 22:08 | 4.1                 | D                  | 48                 | No                                 | <25  | NA                        |
| Gouldsville   | 17/02/2021 21:33 | 3.5                 | D                  | 48                 | No                                 | 33   | NA                        |
| Inlet Rd      | 17/02/2021 21:21 | 3.6                 | D                  | 47                 | No                                 | 30   | NA                        |
| Inlet Rd West | 17/02/2021 21:00 | 3.6                 | D                  | 45                 | No                                 | 37   | NA                        |
| Long Point    | 17/02/2021 21:07 | 3.6                 | D                  | 45                 | No                                 | IA   | NA                        |
| South Bulga   | 17/02/2021 23:35 | 3.8                 | D                  | 45                 | No                                 | IA   | NA                        |
| Wambo Road    | 17/02/2021 21:45 | 3.5                 | D                  | 48                 | No                                 | 39   | NA                        |

Notes.

<sup>1.</sup> Noise criteria apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions. Criterion may or may not apply due to rounding of meteorological data values;

<sup>2.</sup> Site-only LAeq,15minute attributed to WML, including modifying factors if applicable;

<sup>3.</sup> Bold results in red indicate exceedances of relevant criteria;

<sup>4.</sup> IA denotes 'Inaudible'; and

<sup>5.</sup> NA in exceedance column means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable.

<sup>1.</sup> Noise criteria apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions. Criterion may or may not apply due to rounding of meteorological data values;

<sup>2.</sup> Site-only LA1,1minute attributed to WML;

<sup>3.</sup> Bold results in red are possible exceedances of relevant criteria; and

<sup>4.</sup> IA denotes 'Inaudible'; and

#### **5.1.3** MTO Noise Assessment

Compliance assessments undertaken against the MTO noise criteria are presented in Table 5 and 6.

Table 5: L<sub>Aeq, 15minute</sub> Mount Thorley - Impact Assessment Criteria – February 2021

| Location      | Date and Time    | Wind Speed<br>(m/s) | Stability<br>Class | Criterion<br>dB | Criterion<br>Applies? <sup>1</sup> | MTO L <sub>Aeq</sub><br>dB <sup>2,3,4</sup> | Exceedance <sup>3,5</sup> |
|---------------|------------------|---------------------|--------------------|-----------------|------------------------------------|---|---------------------------|
| Bulga RFS     | 17/02/2021 22:47 | 3.5                 | D                  | 37              | No                                 | <30   | NA                        |
| Bulga Village | 17/02/2021 22:08 | 4.1                 | D                  | 38              | No                                 | 30  | NA                        |
| Gouldsville   | 17/02/2021 21:33 | 3.5                 | D                  | 35              | No                                 | IA  | NA                        |
| Inlet Rd      | 17/02/2021 21:21 | 3.6                 | D                  | 37              | No                                 | 29  | NA                        |
| Inlet Rd West | 17/02/2021 21:00 | 3.6                 | D                  | 35              | No                                 | 25  | NA                        |
| Long Point    | 17/02/2021 21:07 | 3.6                 | D                  | 35              | No                                 | IA  | NA                        |
| South Bulga   | 17/02/2021 23:35 | 3.8                 | D                  | 36              | No                                 | IA  | NA                        |
| Wambo Road    | 17/02/2021 21:45 | 3.5                 | D                  | 38              | No                                 | 33  | NA                        |

#### Notes:

Table 6: LA1, 1Minute Mount Thorley - Impact Assessment Criteria - February 2021

| Location      | Date and Time    | Wind Speed<br>(m/s) | Stability<br>Class | Criterion<br>dB | Criterion<br>Applies? <sup>1</sup> | MTO $L_{A1, 1min}$ $dB^{2,3,4}$ | Exceedance <sup>3,5</sup> |
|---------------|------------------|---------------------|--------------------|-----------------|------------------------------------|---------------------------------|---------------------------|
| Bulga RFS     | 17/02/2021 22:47 | 3.5                 | D                  | 47              | No                                 | <30                             | NA                        |
| Bulga Village | 17/02/2021 22:08 | 4.1                 | D                  | 48              | No                                 | 33                              | NA                        |
| Gouldsville   | 17/02/2021 21:33 | 3.5                 | D                  | 45              | No                                 | IA                              | NA                        |
| Inlet Rd      | 17/02/2021 21:21 | 3.6                 | D                  | 47              | No                                 | 36                              | NA                        |
| Inlet Rd West | 17/02/2021 21:00 | 3.6                 | D                  | 45              | No                                 | <30                             | NA                        |
| Long Point    | 17/02/2021 21:07 | 3.6                 | D                  | 45              | No                                 | IA                              | NA                        |
| South Bulga   | 17/02/2021 23:35 | 3.8                 | D                  | 46              | No                                 | IA                              | NA                        |
| Wambo Road    | 17/02/2021 21:45 | 3.5                 | D                  | 48              | No                                 | 35                              | NA                        |

<sup>1.</sup> Noise criteria apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions. Criterion may or may not apply due to rounding of meteorological data values;

<sup>2.</sup> Site-only LAeq,15minute attributed to MTO, including modifying factors if applicable;

<sup>3.</sup> Bold results in red indicate exceedances of relevant criteria; and 4. IA denotes 'Inaudible'; and

<sup>5.</sup> NA in exceedance column means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable.

<sup>1.</sup> Noise criteria apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions. Criterion may or may not apply due to rounding of meteorological data values;

Site-only LAeq,15minute attributed to MTO;
 Bold results in red indicate exceedances of relevant criteria; and

<sup>4.</sup> IA denotes 'Inaudible'; and

<sup>5.</sup> NA in exceedance column means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable.

# **5.1.4 NPfI Low Frequency Assessment**

In accordance with the requirements of the EPA's Noise Policy for Industry (NPfI), the applicability of the low frequency modification factor corrections has been assessed. There were no noise measurements taken during the reporting period which required the penalty to be applied. The WML assessment for low frequency noise is shown in **Table 7** and the MTO assessment for low frequency noise is shown in **Table 8**: Mount Thorley Operations Low Frequency Noise Assessment – .

Table 7: Warkworth Low Frequency Noise Assessment – February 2021

| Location      | Date and Time    | Measured<br>WML LAeq dB <sup>1</sup> | Criterion<br>Applies? | Intermittency<br>Modifying<br>Factor? | Tonality<br>Modifying<br>Factor? | Frequency<br>of<br>Tonality <sup>2</sup> | Low-frequency<br>Modifying<br>Factor? | Maximum<br>Exceedance<br>of Reference<br>Spectrum <sup>2,3</sup> | Penalty dB <sup>2</sup> | Exceedance |
|---------------|------------------|--------------------------------------|-----------------------|---------------------------------------|----------------------------------|--|---------------------------------------|--|-------------------------|------------|
| Bulga RFS     | 17/02/2021 22:47 | IA                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Bulga Village | 17/02/2021 22:08 | <25                                  | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Gouldsville   | 17/02/2021 21:33 | 29                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Inlet Rd      | 17/02/2021 21:21 | 25                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Inlet Rd West | 17/02/2021 21:00 | 29                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Long Point    | 17/02/2021 21:07 | IA                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| South Bulga   | 17/02/2021 23:35 | IA                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Wambo Road    | 17/02/2021 21:45 | 33                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |

Notes:

<sup>1.</sup> IA denotes 'Inaudible';

<sup>2.</sup> NA denotes 'Not Applicable'; and

<sup>3.</sup> Bold results indicate that application of NPfI modifying factor/s is required.

Table 8: Mount Thorley Operations Low Frequency Noise Assessment – February 2021

| Location      | Date and Time    | Measured<br>WML LAeq dB <sup>1</sup> | Criterion<br>Applies? | Intermittency<br>Modifying<br>Factor? | Tonality<br>Modifying<br>Factor? | Frequency<br>of<br>Tonality <sup>2</sup> | Low-frequency<br>Modifying<br>Factor? | Maximum<br>Exceedance<br>of Reference<br>Spectrum <sup>2,3</sup> | Penalty dB <sup>2</sup> | Exceedance |
|---------------|------------------|--------------------------------------|-----------------------|---------------------------------------|----------------------------------|--|---------------------------------------|--|-------------------------|------------|
| Bulga RFS     | 17/02/2021 22:47 | <30                                  | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Bulga Village | 17/02/2021 22:08 | 30                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Gouldsville   | 17/02/2021 21:33 | IA                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Inlet Rd      | 17/02/2021 21:21 | 29                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Inlet Rd West | 17/02/2021 21:00 | 25                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Long Point    | 17/02/2021 21:07 | IA                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| South Bulga   | 17/02/2021 23:35 | IA                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |
| Wambo Road    | 17/02/2021 21:45 | 33                                   | No                    | No                                    | No                               | NA                                       | No                                    | NA   | Nil                     | NA         |

#### Notes:

<sup>1.</sup> IA denotes 'Inaudible';
2. NA denotes 'Not Applicable'; and
3. Bold results indicate that application of NPfl modifying factor/s is required.

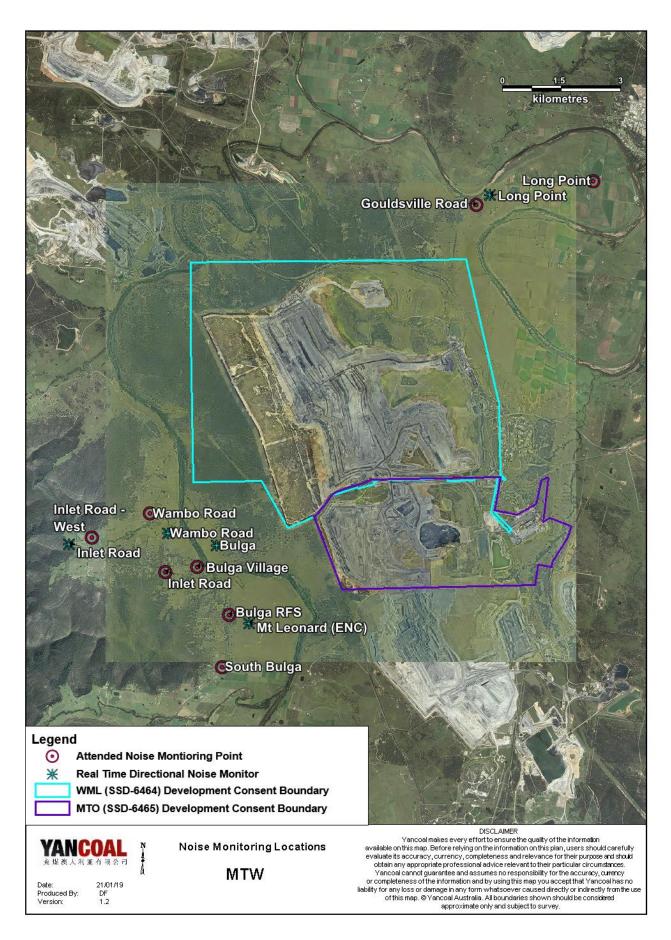


Figure 16: Noise Monitoring Location Plan

# 5.2 Noise Management Measures

A program of targeted supplementary attended noise monitoring is in place at MTW, supported by the real-time directional monitoring network and ensuring the highest level of noise management is maintained. The supplementary program is undertaken by MTW personnel and involves:

- Routine inspections from both inside and outside the mine boundary;
- Routine and as-required handheld noise assessments (undertaken in response to noise alarm and/or community complaint), comparing measured levels against consent noise limits; and
- Validation monitoring following operational modifications to assess the adequacy of the modifications.

Where a noise assessment identifies noise emissions which are exceeding the relevant noise limit(s) for any particular residence, modifications will be made so as to ensure that the noise event is resolved within 75 minutes of identification. The actions taken are commensurate with the nature and severity of the noise event, but can include:

- Changing the haul route to a less noise sensitive haul:
- Changing dump locations (in-pit or less exposed dump option);
- Reducing equipment numbers;
- Shut down of task; or
- Site shut down.

A summary of these assessments undertaken during February are provided in **Table 9**.

Table 9: Supplementary Attended Noise Monitoring Data – February 2021

| No.     | of         | No. of     | No. of nights | %       |
|---------|------------|------------|---------------|---------|
| assessn | nents asso | essments > | where         | greater |
|         |            | trigger    | assessments   | than    |
|         |            |            |               |         |
|         |            |            | > trigger     | trigger |

Note: Measurements are taken under all meteorological conditions, including conditions under which the consent noise criteria do not apply.

#### 6.0 OPERATIONAL DOWNTIME

During February, a total of 40 hours of equipment downtime was logged in response to environmental events such as dust, noise and adverse meteorological conditions. Operational downtime by equipment type is shown in **Figure 17**.

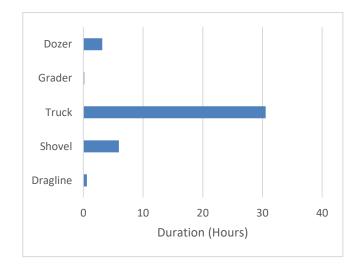


Figure 17: Operational Downtime by Equipment Type – February 2021

#### 7.0 REHABILITATION

During February 2021, 0.2 Ha of land was released and bulk shaped.

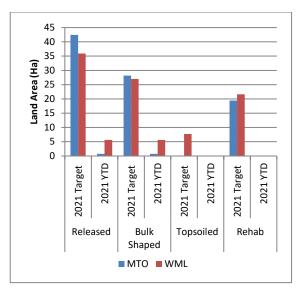


Figure 18: Rehabilitation YTD – February 2021

# 9.0 COMPLAINTS

7 complaints were received during the reporting period. Details of these complaints are shown in **Table 10** below.

# **8.0 ENVIRONMENTAL INCIDENTS**

There were no reportable environmental incidents recorded during the reporting period.

**Table 10: Complaints Summary YTD** 

|           | Noise | Dust | Blast | Lighting | Other | Total |
|-----------|-------|------|-------|----------|-------|-------|
| January   | 1     | 0    | 6     | 4        | 1     | 12    |
| February  | 4     | 0    | 3     | 0        | 0     | 7     |
| March     |       |      |       |          |       |       |
| April     |       |      |       |          |       |       |
| May       |       |      |       |          |       |       |
| June      |       |      |       |          |       |       |
| July      |       |      |       |          |       |       |
| August    |       |      |       |          |       |       |
| September |       |      |       |          |       |       |
| October   |       |      |       |          |       |       |
| November  |       |      |       |          |       |       |
| December  |       |      |       |          |       |       |
| Total     | 5     | 0    | 9     | 4        | 1     | 19    |

Appendix A: Meteorological Data

Table 11: Meteorological Data – Charlton Ridge Meteorological Station – February 2021

| Date       | Air Temperature<br>Maximum (°C) | Air Temperature<br>Minimum (°C) | Relative Humidity<br>Maximum (%) | Relative Humidity<br>Minimum (%) | Wind Direction<br>Average (°) | Wind Speed<br>Average (m/sec) | Rainfall(mm) |
|------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|-------------------------------|-------------------------------|--------------|
| 1/02/2021  | 32                              | 16                              | 89                               | 42                               | 143                           | 3.3                           | 0.0          |
| 2/02/2021  | 28                              | 14                              | 99                               | 41                               | 136                           | 2.9                           | 27.8         |
| 3/02/2021  | 26                              | 14                              | 86                               | 46                               | 127                           | 2.7                           | 0.0          |
| 4/02/2021  | 32                              | 12                              | 92                               | 37                               | 131                           | 2.3                           | 0.0          |
| 5/02/2021  | 33                              | 15                              | 92                               | 32                               | 122                           | 2.5                           | 0.0          |
| 6/02/2021  | 28                              | 16                              | 98                               | 52                               | 153                           | 2.1                           | 5.6          |
| 7/02/2021  | 30                              | 15                              | 99                               | 37                               | 219                           | 2.5                           | 3.0          |
| 8/02/2021  | 27                              | 14                              | 90                               | 48                               | 137                           | 3.0                           | 0.0          |
| 9/02/2021  | 26                              | 13                              | 86                               | 40                               | 135                           | 3.2                           | 0.0          |
| 10/02/2021 | 25                              | 12                              | 94                               | 47                               | 131                           | 2.5                           | 0.6          |
| 11/02/2021 | 30                              | 11                              | 92                               | 31                               | 142                           | 1.8                           | 0.0          |
| 12/02/2021 | 34                              | 12                              | 87                               | 33                               | 245                           | 2.2                           | 0.0          |
| 13/02/2021 | 25                              | 14                              | 99                               | 64                               | 224                           | 3.2                           | 21.4         |
| 14/02/2021 | 27                              | 13                              | 88                               | 40                               | 154                           | 3.8                           | 0.0          |
| 15/02/2021 | 25                              | 12                              | 97                               | 47                               | 159                           | 5.5                           | 0.6          |
| 16/02/2021 | 27                              | 13                              | 98                               | 48                               | 138                           | 4.7                           | 7.2          |
| 17/02/2021 | 25                              | 13                              | 98                               | 42                               | 137                           | 4.2                           | 0.6          |
| 18/02/2021 | 23                              | 13                              | 98                               | 58                               | 138                           | 3.4                           | 3.0          |
| 19/02/2021 | 27                              | 14                              | 99                               | 59                               | 135                           | 3.0                           | 6.6          |
| 20/02/2021 | 27                              | 17                              | 96                               | 58                               | 140                           | 2.5                           | 1.6          |
| 21/02/2021 | 29                              | 16                              | 96                               | 51                               | 146                           | 2.8                           | 1.0          |
| 22/02/2021 | 32                              | 15                              | 96                               | 39                               | 178                           | 1.7                           | 6.6          |
| 23/02/2021 | 21                              | 14                              | 88                               | 66                               | 156                           | 3.9                           | 0.2          |
| 24/02/2021 | 21                              | 12                              | 97                               | 73                               | 148                           | 3.8                           | 3.2          |
| 25/02/2021 | 24                              | 12                              | 99                               | 73                               | 179                           | 1.3                           | 0.2          |
| 26/02/2021 | 33                              | 12                              | 98                               | 34                               | 232                           | 3.0                           | 0.0          |
| 27/02/2021 | 25                              | 15                              | 96                               | 71                               | 124                           | 2.4                           | 0.2          |
| 28/02/2021 | 31                              | 15                              | 98                               | 41                               | 163                           | 2.0                           | 0.0          |
|            |                                 |                                 |                                  |                                  |                               |                               |              |

<sup>&</sup>quot;-" Indicates that data was not available due to technical issues.