



# Monthly Environmental Monitoring Report Yancoal Mount Thorley Warkworth January 2025

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#### **Revision History**

Version No.	Version Details	Date
1.0	Final	7/05/2025

#### **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 January to 31 January 2025.

#### 2.0 AIR QUALITY

#### 2.1 Meteorological Monitoring

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

#### 2.1.1 Rainfall

Rainfall for the reporting period is summarised in **Table 1**. The year-to-date monthly rainfall totals, 2025 monthly rainfall totals and historical average monthly rainfall trend are shown in **Figure 1**.

#### 2.1.2 Wind Speed and Direction

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

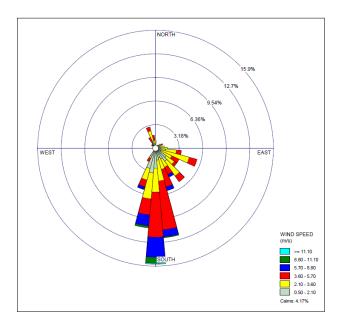
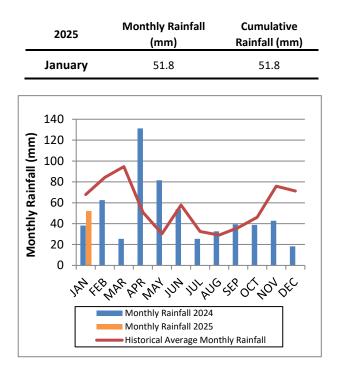


Table 1: Monthly Rainfall MTW



#### Figure 1: Rainfall Trend YTD

Note: The historical average monthly rainfall is calculated from 2007 to 2024 monthly totals.

#### Figure 2: Charlton Ridge Wind Rose – January 2025

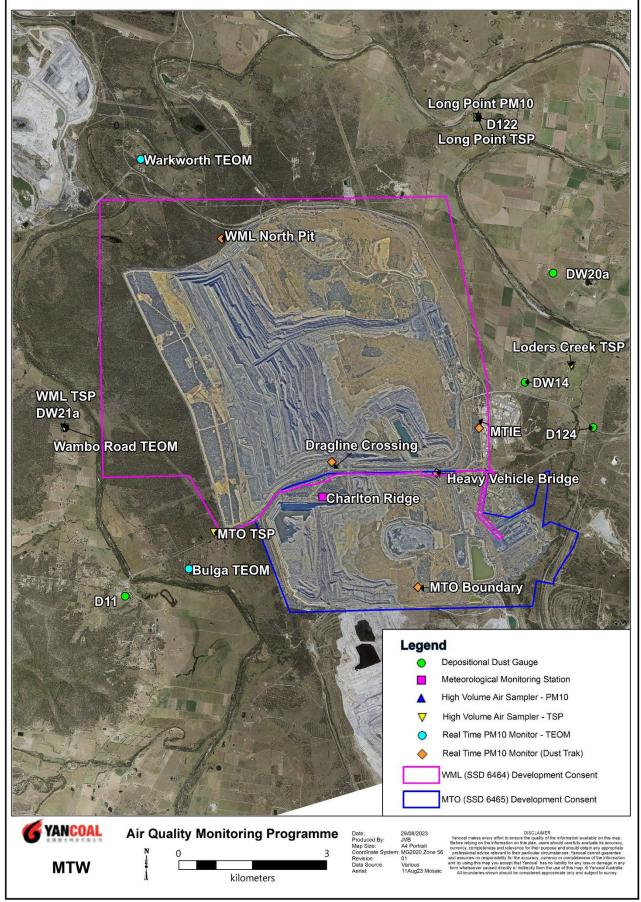


Figure 3: Air Quality Monitoring Locations

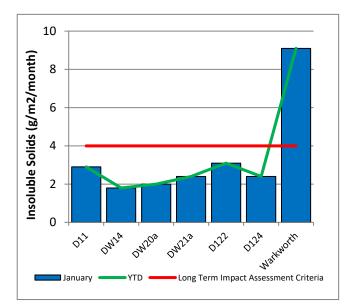
#### 2.2 Depositional Dust

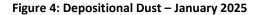
To monitor air quality, MTW operates and maintains a network of seven depositional dust gauges, situated on private and mine owned land surrounding MTW.

During the reporting period, the Warkworth monitoring location 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 result at Warkworth ( $9.1 \text{ g/m}^2$ ) is contaminated, as such 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 2025 Annual Review Report.





#### 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  $50\mu g/m^3$ .

On 6 January 2025 the Long Point HVAS PM10 unit recorded a result of 52.4  $\mu$ g/m<sup>3</sup>, which is greater than the short term (24hr) PM10 impact assessment criteria of 50  $\mu$ g/m<sup>3</sup>. The measurement was assessed for MTW's potential contribution based on meteorological conditions and background PM<sub>10</sub> levels on this day resulting in a maximum estimated contribution of 22  $\mu$ g/m<sup>3</sup>, less than a 42% contribution to the result. Accordingly, no further action is required (as per approved Air Quality Monitoring Programme).

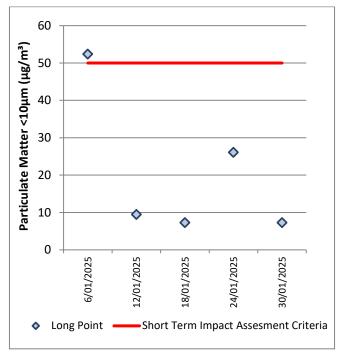
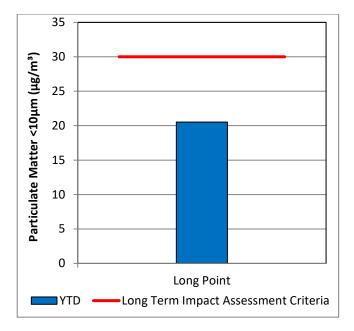


Figure 5: Individual PM10 Results – January 2025

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

An assessment of MTW's compliance with the Long-Term Impact Assessment Criteria will be provided in the 2025 Annual Review Report.





#### 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 2025 Annual Review Report.

Data was not available on 6 January from the Loders Creek monitor due to equipment issues.

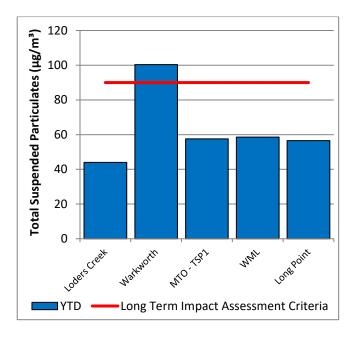


Figure 8: Annual Average Total Suspended Particulates – January 2025

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

MTW maintains a network of real time PM<sub>10</sub> 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.

On 1<sup>st</sup> January 2025 the Warkworth TEOM Data (50.2  $\mu$ g/m<sup>3</sup>) exceeded the short term (24hr) criteria. The measurement was assessed for MTW's potential contribution based on meteorological conditions and background PM<sub>10</sub> levels on the day resulting in a maximum estimated contribution of 18.9 ug/m3, less than 39% contribution to the result. Accordingly, no further action is required (as per the approved Air Quality Monitoring Programme).

On 5<sup>th</sup> January 2025 the Warkworth TEOM Data (58.9  $\mu$ g/m<sup>3</sup>) exceedance. exceeded the short term (24hr) criteria. The measurement was assessed for MTW's potential contribution based on meteorological conditions and background PM<sub>10</sub> levels on the day resulting in a maximum estimated contribution of 26.5 ug/m3, less than 51% contribution to the result. Accordingly, no further action is required (as per the approved Air Quality Monitoring Programme).

On 6<sup>th</sup> January 2025 the Warkworth TEOM Data (54.2  $\mu$ g/m<sup>3</sup>) exceedance. exceeded the short term (24hr) criteria. The measurement was assessed for MTW's potential contribution based on meteorological conditions and background PM<sub>10</sub> levels on the day resulting in a maximum estimated contribution of 20.7 ug/m<sup>3</sup>, less than 39% contribution to the result. Accordingly, no further action is required (as per the approved Air Quality Monitoring Programme).

On  $22^{nd}$  January 2025 the Warkworth TEOM Data (58.7 µg/m<sup>3</sup>) exceeded the short term (24hr) criteria. The measurement was assessed for MTW's potential contribution based on meteorological conditions and background PM<sub>10</sub> levels on the day resulting in a maximum estimated contribution of 28.0 µg/m3, less than 49% contribution to the result. Accordingly, no further action is required (as per the approved Air Quality Monitoring Programme).

Data from the Wambo monitor was not available on 16 January, data from the Warkworth Monitor was not available

on 21 January and data from the Bulga monitor was not available on 29 and 30 January due to equipment issues.

#### 2.3.4 Real Time Alarms for Air Quality

During January, the real time monitoring system generated 99 automated air quality related alerts, including 21 alerts for adverse meteorological conditions and 78 alerts for elevated  $PM_{10}$  levels.

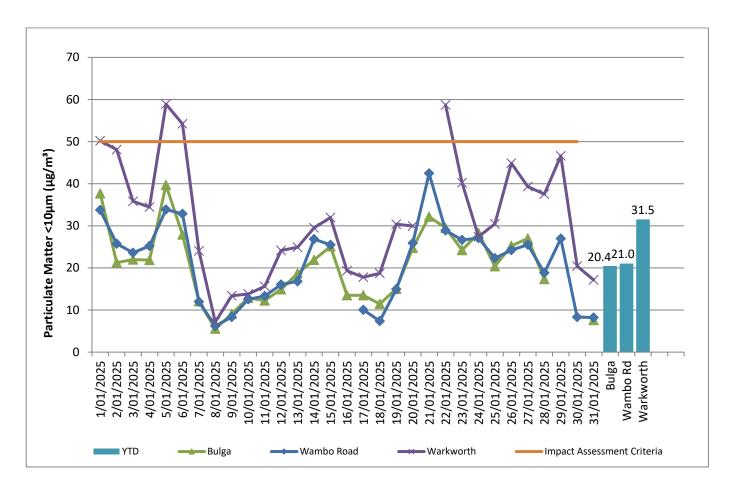


Figure 9: Real Time PM<sub>10</sub> daily 24hr average (line graphs) and YTD annual average (column graphs) – January 2025

#### 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 2025 report.

#### 3.2 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.

MTW did not undertake any HRSTS discharges in the reporting period.

#### 3.3 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 2025 report.

#### 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 January 2025, 17 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**

Comments					
5% of the total number of blasts in a 12 month period at WML or MTO					
0%					
Comments					
5% of the total number of blasts in a 12 month period at WML or MTO					
0%					

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

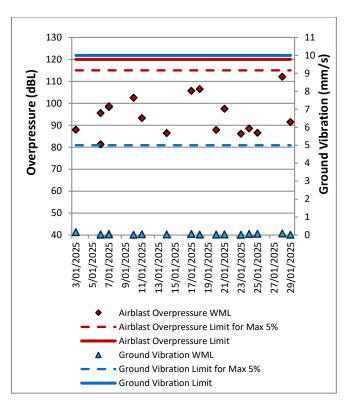


Figure 10: Abbey Green Blast Monitoring Results –January 2025

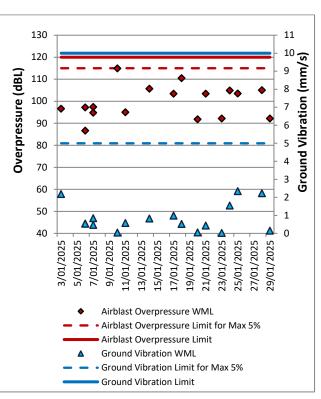


Figure 11: Bulga Village Blast Monitoring Results – January 2025

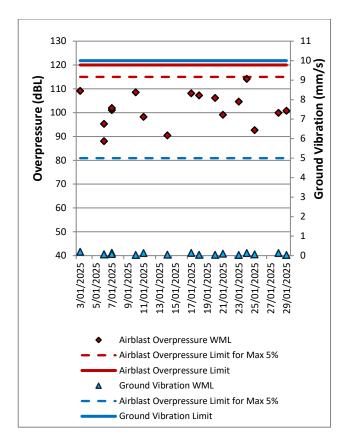


Figure 12: MTIE Blast Monitoring Results – January 2025

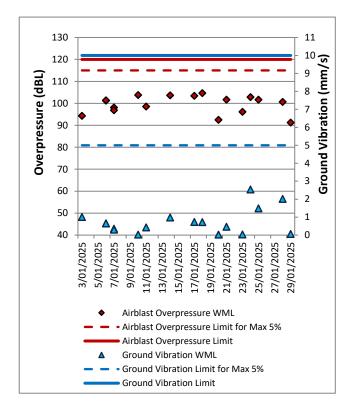


Figure 13: Wollemi Peak Road Blast Monitoring Results – January 2025

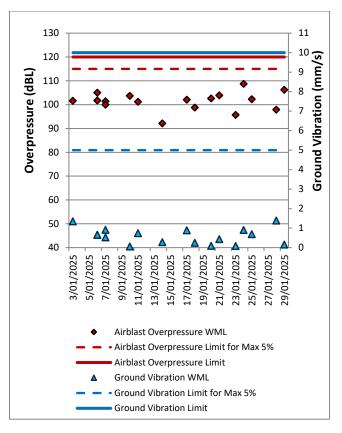


Figure 14: Wambo Road Blast Monitoring Results – January 2025

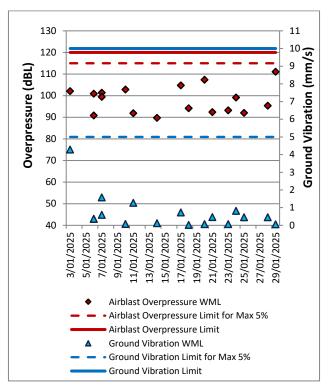


Figure 15: Warkworth Blast Monitoring Results – January 2025

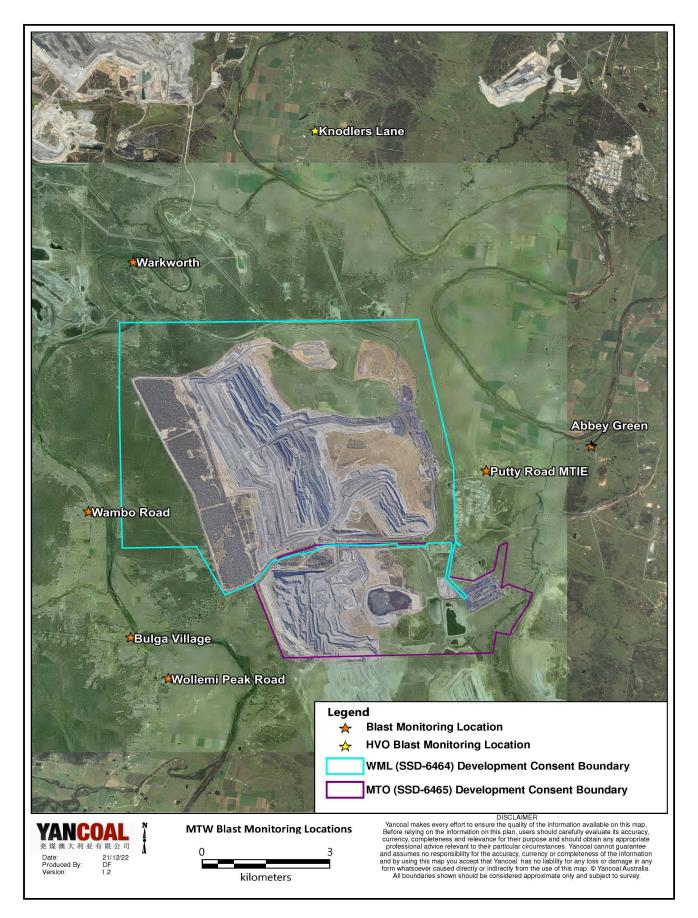


Figure 16: MTW Blast Monitoring Location Plan

#### 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 14 January 2025. 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: LAeq, 15 minute Warkworth Impact Assessment Criteria – January 2025

Location <sup>5</sup>	Date and Time	Wind Speed (m/s)	, Stability Class	Criterion dB(A)	Criterion Applies? <sup>1</sup>	WML L <sub>Aeq</sub> dB <sup>2,3</sup>	Exceedance <sup>3,4</sup>
Bulga RFS	14/01/2025 23:51	1.8	F	37	Yes	35	Nil
Bulga Village	14/01/2025 22:20	3.4	E	38	No	IA	NA
Gouldsville	14/01/2025 21:20	3.4	D	38	No	IA	NA
Inlet Road	14/01/2025 21:23	4.1	D	37	No	31	NA
Inlet Road West	14/01/2025 21:00	3.1	D	35	No	<25	NA
Long Point	14/01/2025 21:00	3.1	D	35	No	IA	NA
South Bulga	14/01/2025 23:00	1.4	F	35	Yes	IA	Nil
Wambo Road	14/01/2025 21:49	3.7	D	38	No	30	NA

Notes:

1. Noise criteria apply during all meteorological conditions except the following: 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, 2. Site-only LAeq, 15minute attributed to WML, including modifying factors if applicable;

3. Bold results in red indicate exceedance of relevant criterion; and 4. NA in exceedance column means atmospheric conditions outside conditions specified in consent, therefore criterion was not applicable.

5. Follow up measurement within one week of measured exceedance

#### Table 4: LA1, 1 minute Warkworth - Impact Assessment Criteria – January 2025

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<b>Location</b> <sup>5</sup>	Date and Time	Wind Speed (m/s)	Stability Class	Criterion dB(A)	Criterion Applies? <sup>1</sup>	WML L <sub>A1, 1min</sub> dB <sup>2,3</sup>	Exceedance <sup>3,4</sup>
Bulga RFS	14/01/2025 23:51	1.8	F	47	Yes	40	Nil
Bulga Village	14/01/2025 22:20	3.4	E	48	No	IA	NA
Gouldsville	14/01/2025 21:20	3.4	D	48	No	IA	NA
Inlet Road	14/01/2025 21:23	4.1	D	47	No	39	NA
Inlet Road West	14/01/2025 21:00	3.1	D	45	No	<25	NA
Long Point	14/01/2025 21:00	3.1	D	45	No	IA	NA
South Bulga	14/01/2025 23:00	1.4	F	45	Yes	IA	Nil
Wambo Road	14/01/2025 21:49	3.7	D	48	No	37	NA
otes:							

1. Noise criteria apply during all meteorological conditions except the following: 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:

2. Site-only LA1,1minute attributed to WML;

3. Bold results in red indicate exceedance of relevant criterion; and

A. NA in exceedance column means atmospheric conditions outside conditions specified in development consent, therefore criterion was not applicable.
Follow up measurement within one week of measured exceedance.

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#### 5.1.2 MTO Noise Assessment

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

Location	Date and Time	Wind Speed (m/s)	Stability Class	Criterion dB	Criterion Applies? <sup>1</sup>	MTO L <sub>Aeq</sub> dB <sup>2,3</sup>	Exceedance <sup>3,4</sup>
Bulga RFS	14/01/2025 23:51	1.8	F	37	Yes	31	Nil
Bulga Village	14/01/2025 22:20	3.4	E	38	No	<25	NA
Gouldsville	14/01/2025 21:20	3.4	D	35	No	IA	NA
Inlet Road	14/01/2025 21:23	4.1	D	37	No	<30	NA
Inlet Road West	14/01/2025 21:00	3.1	D	35	No	27	NA
Long Point	14/01/2025 21:00	3.1	D	35	No	IA	NA
South Bulga	14/01/2025 23:00	1.4	F	36	Yes	31	Nil
Wambo Road	14/01/2025 21:49	3.7	D	38	No	<25	NA

#### Table 5: LAeg, 15minute Mount Thorley - Impact Assessment Criteria – January 2025

Notes: 1. Noise criteria apply during all meteorological conditions except the following: 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; 2. Site-only LAeq, 15minute attributed to MTO, including modifying factors if applicable; 3. Bold results in red indicate exceedance of relevant criterion; and 4. NA in exceedance column means atmospheric conditions outside conditions specified in development consent, therefore criterion was not applicable.

5. Follow up measurement within one week of measured exceedance

#### Table 6: LA1, 1Minute Mount Thorley - Impact Assessment Criteria – January 2025

Location	Date and Time	Wind Speed (m/s)	Stability Class	Criterion dB	Criterion Applies? <sup>1</sup>	MTO L <sub>A1, 1min</sub> dB <sup>2,3</sup>	Exceedance <sup>3,4</sup>
Bulga RFS	14/01/2025 23:51	1.8	F	47	Yes	33	Nil
Bulga Village	14/01/2025 22:20	3.4	E	48	No	30	NA
Gouldsville	14/01/2025 21:20	3.4	D	45	No	IA	NA
Inlet Road	14/01/2025 21:23	4.1	D	47	No	35	NA
Inlet Road West	14/01/2025 21:00	3.1	D	45	No	31	NA
Long Point	14/01/2025 21:00	3.1	D	45	No	IA	NA
South Bulga	14/01/2025 23:00	1.4	F	46	Yes	36	Nil
Wambo Road	14/01/2025 21:49	3.7	D	48	No	<25	NA

Notes:

1. Noise criteria apply during all meteorological conditions except the following: 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; 2. Site-only LA1,1minute attributed to MTO; 3. Bold results in red indicate exceedance of relevant criterion; and

A NA in exceedance column control of rectain citerrary and
A NA in exceedance column means atmospheric conditions outside conditions specified in development consent, therefore criterion was not applicable.
Follow up measurement within one week of measured exceedance.

#### 5.1.3 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. 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**.

#### Table 7: Warkworth Low Frequency Noise Assessment – January 2025

Location	Date and Time	Measured WML LAeq dB	Criterion Applies?	Intermittency Modifying Factor?	Tonality Modifying Factor?	Frequency of Tonality <sup>1</sup>	Low- frequency Modifying Factor?	Maximum Exceedance of Reference Spectrum <sup>1,2</sup>	Penalty dB <sup>2</sup>
Bulga RFS	14/01/2025 23:51	34	Yes	No	No	NA	No	NA	Nil
Bulga Village	14/01/2025 22:20	IA	No	NA	NA	NA	NA	NA	NA
Gouldsville	14/01/2025 21:20	IA	No	NA	NA	NA	NA	NA	NA
Inlet Road	14/01/2025 21:23	31	No	NA	NA	NA	NA	NA	NA
Inlet Road West	14/01/2025 21:00	<25	No	NA	NA	NA	NA	NA	NA
Long Point	14/01/2025 21:00	IA	No	NA	NA	NA	NA	NA	NA
South Bulga	14/01/2025 23:00	IA	Yes	No	No	NA	No	NA	Nil
Wambo Road	14/01/2025 21:49	30	No	NA	NA	NA	NA	NA	NA

Notes:

1. NA denotes 'not applicable'; and

2. Bold results indicate that application of NPfl modifying factor/s is required.

3. Follow up measurement within one week of measured exceedance.

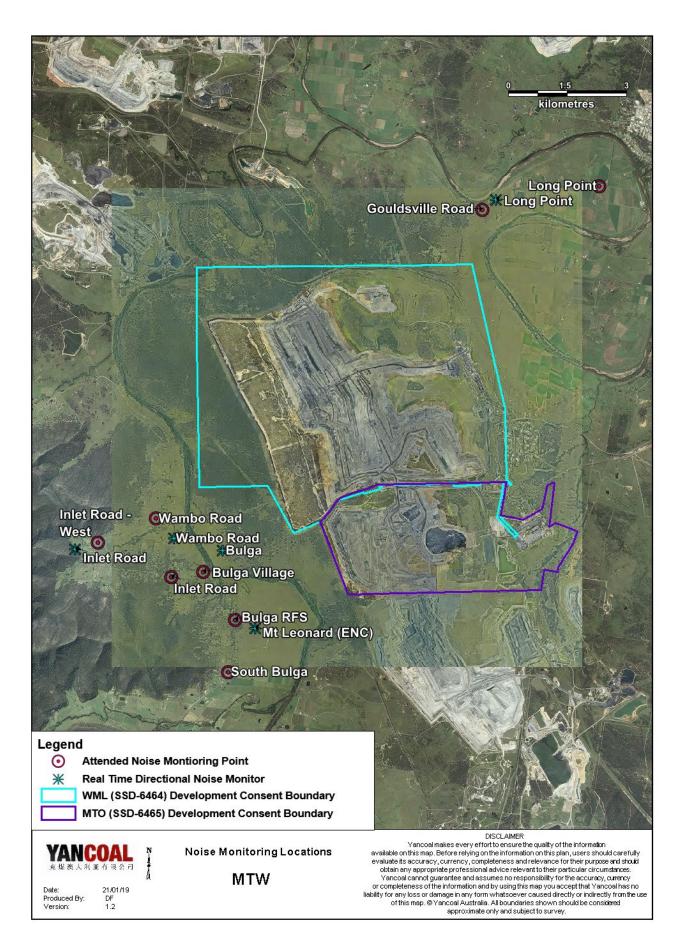
Table 8: Mount Thorle	ey Operations	Low Frequency	/ Noise Assessment -	- January 2025
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Location	Date and Time	Measured MTO LAeq dB	Criterion Applies?	Intermittency Modifying Factor?	Tonality Modifying Factor?	Frequency of Tonality <sup>1</sup>	Low-frequency Modifying Factor?	Maximum Exceedance of Reference Spectrum <sup>1,2</sup>	Penalty dB <sup>2</sup>
Bulga RFS	14/01/2025 23:51	<30	Yes	No	No	NA	No	NA	Nil
Bulga Village	14/01/2025 22:20	<25	No	NA	NA	NA	NA	NA	NA
Gouldsville	14/01/2025 21:20	IA	No	NA	NA	NA	NA	NA	NA
Inlet Road	14/01/2025 21:23	<30	No	NA	NA	NA	NA	NA	NA
Inlet Road West	14/01/2025 21:00	27	No	NA	NA	NA	NA	NA	NA
Long Point	14/01/2025 21:00	IA	No	NA	NA	NA	NA	NA	NA
South Bulga	14/01/2025 23:00	31	Yes	No	No	NA	No	NA	Nil
Wambo Road	14/01/2025 21:49	<25	No	NA	NA	NA	NA	NA	NA

Notes:

1. NA denotes 'not applicable'; and

Bold results indicate that application of NPfl modifying factor/s is required.
Follow up measurement within one week of measured exceedance.



#### 5.2 Noise Management Measures

A program of targeted supplementary attended noise monitoring is in place at MTW, supported by the realtime 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 residence, modifications will be made 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 January are provided in **Table 9**.

# Table 9: Supplementary Attended NoiseMonitoring Data – January 2025

No. of	No. of	No. of nights	%
assessments	s assessments	where	greater
	> trigger	assessments	than
		> trigger	trigger

#### 6.0 OPERATIONAL DOWNTIME

During January, a total of 217.2 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**.

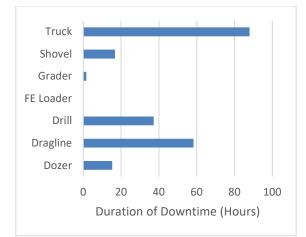


Figure 18: Operational Downtime by Equipment Type – January 2025

### 7.0 REHABILITATION

During January 2025, 1.8 Ha of land was released, 7.4 Ha was bulk shaped, 1.8 Ha was topsoiled, and 2.0 Ha was rehabilitated.

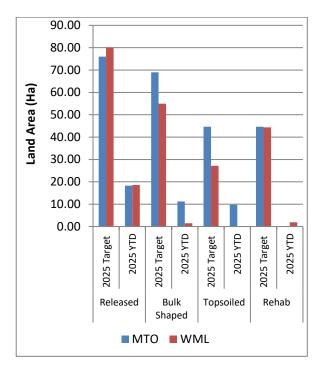


Figure 19: Rehabilitation YTD – January 2025

#### 8.0 ENVIRONMENTAL INCIDENTS

There were no environmental incidents recorded during the reporting period.

## 9.0 COMPLAINTS

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

#### Table 10: Complaints Summary YTD

	Noise	Dust	Blast	Lighting	Other	Total
January	0	3	3	2	0	8
February						
March						
April			-	-		
May						
June						
July						
August			-	-		
September			-	-		
October						
November						
December		-	-	-		
Total	0	3	3	2	0	8

Appendix A: Meteorological Data

Date	Air Tem	Air Temperature		Relative Humidity		Wind Speed	Rainfall
	Maximum (°C)	Minimum (°C)	Maximum (%)	Minimum (%)	Average (°)	Average (m/sec)	total (mm)
1/01/2025	32	17	96	38	159	2.5	0.0
2/01/2025	35	17	78	19	160	1.8	0.0
3/01/2025	27	18	84	48	166	4.3	0.0
4/01/2025	29	17	94	44	139	3.1	0.0
5/01/2025	34	14	90	25	144	1.9	0.0
6/01/2025	37	16	84	19	168	1.8	0.0
7/01/2025	40	18	100	15	201	2.4	4.4
8/01/2025	23	16	100	69	168	3.3	9.8
9/01/2025	21	14	100	66	189	5.0	1.2
10/01/2025	26	14	100	57	180	4.0	0.0
11/01/2025	29	17	94	47	134	2.9	0.4
12/01/2025	29	18	100	45	125	2.3	10.2
13/01/2025	33	17	100	30	159	1.9	0.0
14/01/2025	35	17	99	34	169	1.8	0.0
15/01/2025	35	19	100	27	147	1.6	9.6
16/01/2025	41	18	100	21	181	2.4	4.0
17/01/2025	21	15	90	70	178	2.7	0.2
18/01/2025	19	15	100	61	184	7.4	4.0
19/01/2025	27	15	90	55	168	6.7	0.0
20/01/2025	27	14	94	40	163	4.1	0.0
21/01/2025	28	12	97	32	154	1.9	0.0
22/01/2025	33	13	96	30	139	1.7	0.0
23/01/2025	41	17	83	15	230	3.4	0.0
24/01/2025	27	18	95	44	131	2.7	0.0
25/01/2025	32	16	89	34	155	2.4	0.0
26/01/2025	31	16	94	36	143	2.2	0.0
27/01/2025	34	16	93	33	149	3.0	0.0
28/01/2025	40	19	100	27	182	2.7	5.8
29/01/2025	43	18	100	20	237	3.8	1.6
30/01/2025	24	16	100	63	176	3.2	0.4
31/01/2025	27	18	100	65	184	3.1	0.2

#### Table 11: Meteorological Data – Charlton Ridge Meteorological Station – January 2025