

Monthly Environmental Monitoring Report

June 2018

June 2018	1	Final
Date	Rev.	Status

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1. Introduction

The Mount Pleasant Operation (MPO) is located in the Upper Hunter Valley of New South Wales, approximately three kilometres (km) north-west of Muswellbrook and approximately 50 km north-west of Singleton. The villages of Aberdeen and Kayuga are located 12 km north-northeast and 3 km north of the Project boundary, respectively.

The purpose of this Report is to provide a monthly update of monitoring data in accordance with the requirements of Environmental Protection Licence (EPL) 20850, Section 66(6) of the POEO Act and the MPO Project Approval DA 92/97.

Table 1-1 – Mount Pleasant Operations

Name of Operation	Mount Pleasant Operation
Name of Licensee	MACH Energy Australia Pty Ltd
Environmental Protection Licence	20850
Reporting Period Start Date	1 June 2018
Reporting Period End Date	30 June 2018
Date Data Received	14 July 2018

To view MPO EPL 20850 in full please refer to the link below.

<http://www.environment.nsw.gov.au>

2. Monitoring Requirements

The MPO Environment Protection Licence (EPL) 20850 specifically requires the monitoring of:

- 2 x Palas Fidas PM10 sites;
- Noise monitoring;
- Blast monitoring; and
- Meteorological monitoring.

Monitoring of sites not required by the EPL are carried out in accordance with MPO Environmental Monitoring Program (EMP) and Project Approval DA 92/97.

The MPO Environmental Monitoring Network is shown on **Figure 2-1 and Figure 2-2**.

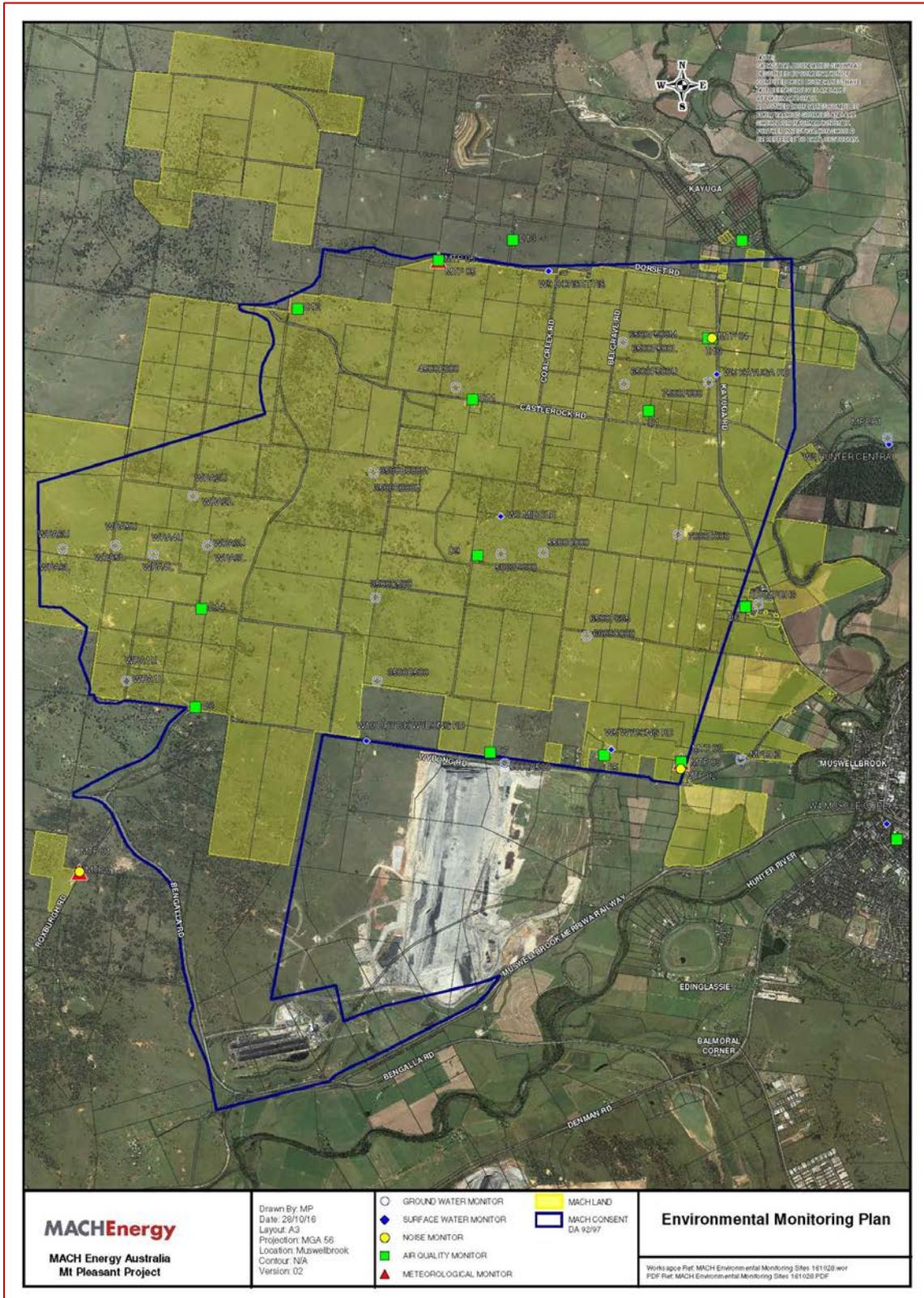


Figure 2-1 – MPO Environmental Monitoring Network

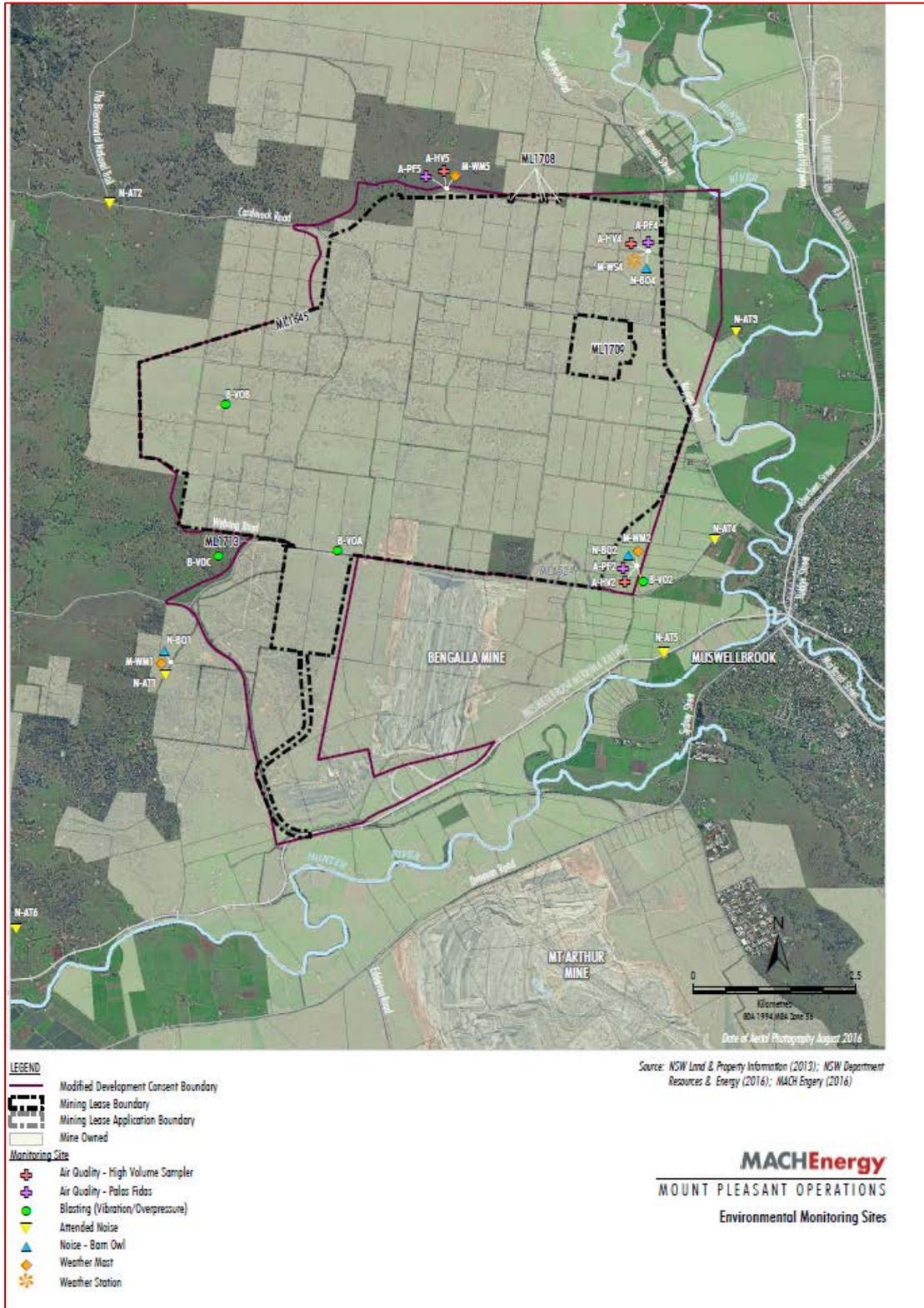


Figure 2-2 – MPO Environmental Monitoring Network/EPL Monitoring Sites

3. Dust Depositional Monitoring

Dust deposition was monitored according to the OEH's Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DEC 2007), which references AS/NZS 3580.10.1:2003 (R2014) Determination of particulate matter – Deposited matter – Gravimetric Method. The dust deposition exposure period for all gauges commenced on 21 May 2018. Sample collection was undertaken on 21 June 2018 by AECOM with sample analysis performed by SRT NATA accredited laboratory. The monitoring network comprises of 13 dust deposition gauges (DDG). Results for June 2018 are shown in **Table 3-1**.

Table 3-1: Dust Depositional Results – June 2018

Location	YTD Insoluble Solids (g/m ² .month)	Insoluble Solids Annual Rolling Average (g/m ² .month)
D1	1.5	1.3
D3	3.1	2.3
D4	1.8	1.4
D5	2.4	2.1*
D6	3.8	3.1
D7	10.2	8.5*
D8	4.0	4.1
D9	1.8	1.6
D10	1.5	1.2
D11	1.7	1.7
D12	1.0	0.9
D13	1.9	2.6
D14	3.3	2.6
<i>Criterion</i>	-	4

* Sites D5a and D7a were installed in September 2017. Insoluble solids annual rolling average data is not available.

Note: Contaminated results are not included in the 12 month rolling average. Monthly results above 4g/m²/month are not classed as an exceedance of criteria as the criteria is an annual average of 4g/m²/month. **Figure 3-1** compares the monthly insoluble solids results to the annual averages for each dust gauge and the assessment criterion.

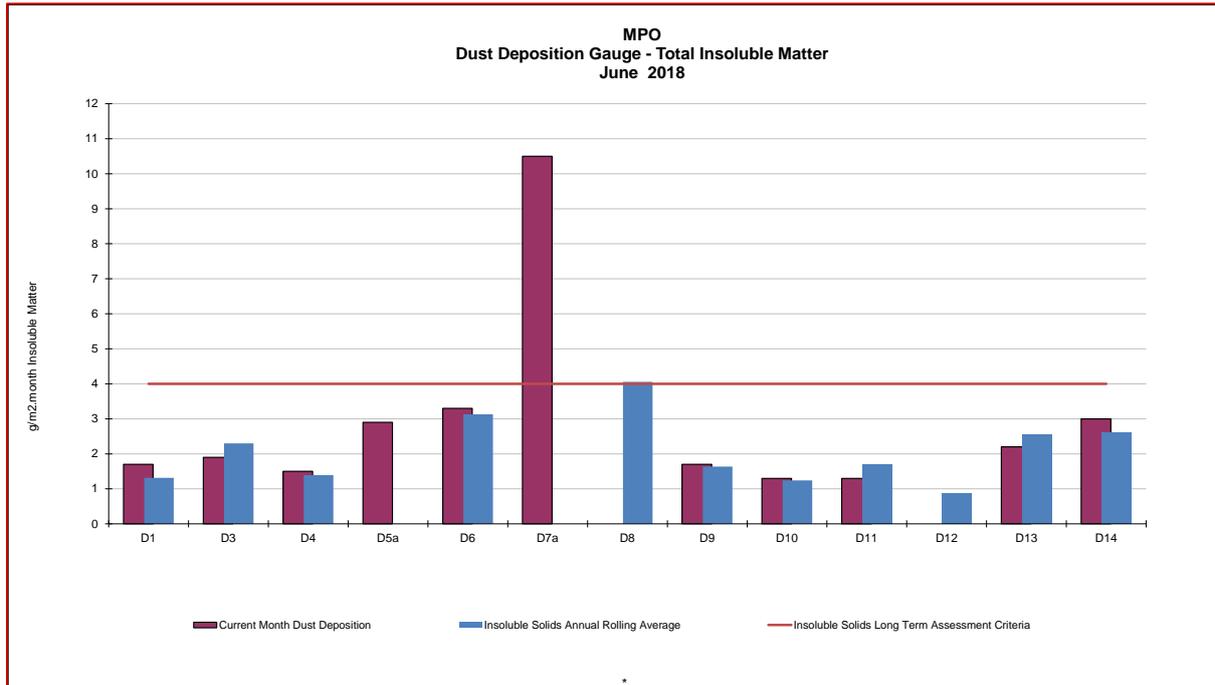


Figure 3-1: MPO DDG Total Insoluble Solids Monitoring Results – June 2018

Exceedance of the EPA annual average criterion for dust deposition (insoluble solids) was recorded at site D8 (4.1 g/m².month). DDG water for D8 was recorded in field notes as being light brown and slightly turbid. The water for D12 was noted as being cloudy and slightly turbid. Both gauges contained insects. In addition, gauge D8 contained plastic and gauge D12 contained vegetation and bird droppings. D8 and D12 both had low ash to insoluble solids ratios (63% and 31% respectively). The monthly dust deposition results at each of these sites exceeded their annual rolling average results. Due to these factors, DDG D8 and D12 were considered to have been contaminated. Due to the contamination of D8 and D12, the analysed results of these gauges did not contribute to their annual rolling averages.

4. Total Suspended Particulates

All HVAS are run for 24 hours every six days in accordance with AM-15 of Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DECC, 2007), referencing AS/NZS 3580.9.3:2015 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) - High volume sampler gravimetric method, for the monitoring of TSP.

TSP results for the monitoring period are provided in **Table 4-1**.

Table 4-1 Total Suspended Particulate Monitoring Data – June 2018

Run Date	Criterion	A-HV2	A-HV4	A-HV5
		µg/m ³		
6/06/2018	-	36	24	27
12/06/2018	-	62	10	8
18/06/2018	-	153	6	6
24/06/2018	-	37	26	24
30/06/2018	-	91	22	9
Monthly Mean	-	76	18	15
Annual Rolling Average	90	75	41	38

For the reporting period, the year to date average TSP data for HVAS A-HV2, HVAS – A-HV4 and HVAS A-HV5 was below the annual average criterion of 90 µg/m³ at all monitoring sites.

5. Real Time PM₁₀ Monitoring

Continuous particulate matter less than 10µm (PM10) monitoring was conducted by three (3) Palas Fidas units at MPO during June 2018.

The EPA identification numbers 1 and 2 refer to Palas Fidas Units installed on Wybong Road (APF2) and Castlerock Road (APF5) respectively. In addition, a third unit (APF4) is installed on Kayuga Road with data used for management purposes only.

Real time PM10 results for June 2018 are illustrated in **Figure 5-1** and shown in **Table 5- 1**

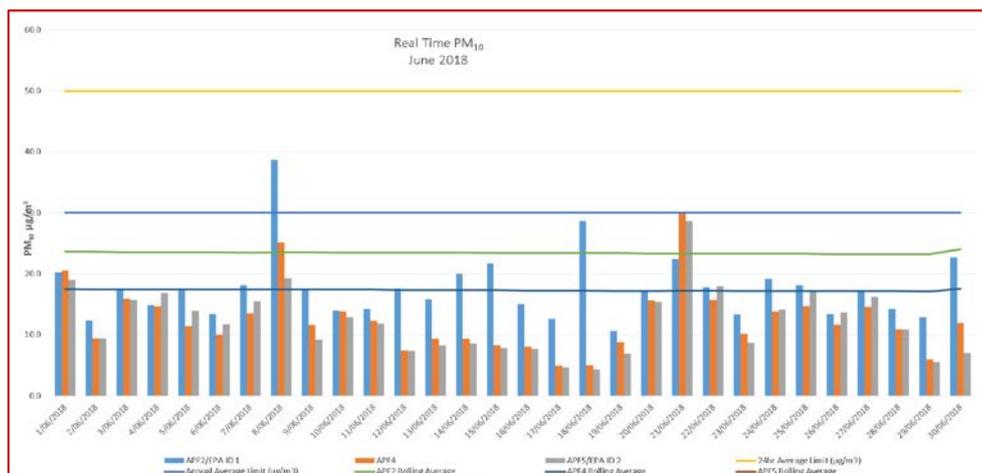


Figure 5-1 : MPO Daily Results from Palas Fidas – June 2018

Table 5-1: MPO Palas Fidas Data – June 2018

Date	APF2/EPA ID 1	APF4	APF5/EPA ID 2	24hr Average Limit ($\mu\text{g}/\text{m}^3$)
	Daily Result			
1/06/2018	20.2	20.5	19.0	50
2/06/2018	12.4	9.4	9.4	50
3/06/2018	17.5	15.9	15.7	50
4/06/2018	14.9	14.6	16.8	50
5/06/2018	17.6	11.4	13.9	50
6/06/2018	13.4	10.0	11.7	50
7/06/2018	18.2	13.5	15.5	50
8/06/2018	38.7	25.2	19.3	50
9/06/2018	17.3	11.6	9.2	50
10/06/2018	14.0	13.8	12.9	50
11/06/2018	14.2	12.3	11.8	50
12/06/2018	17.5	7.5	7.3	50
13/06/2018	15.8	9.3	8.3	50
14/06/2018	20.1	9.4	8.5	50
15/06/2018	21.7	8.2	7.8	50
16/06/2018	15.0	8.1	7.7	50
17/06/2018	12.7	5.0	4.7	50
18/06/2018	28.7	5.0	4.3	50
19/06/2018	10.7	8.8	6.9	50
20/06/2018	17.3	15.6	15.4	50
21/06/2018	22.5	30.2	28.7	50
22/06/2018	17.8	15.7	18.0	50
23/06/2018	13.3	10.2	8.8	50
24/06/2018	19.2	13.9	14.2	50
25/06/2018	18.1	14.7	17.1	50
26/06/2018	13.4	11.7	13.7	50
27/06/2018	17.3	14.5	16.2	50
28/06/2018	14.2	10.9	10.8	50
29/06/2018	12.9	5.9	5.5	50
30/06/2018	22.7	11.9	7.0	50

6. Surface Water Monitoring

Monthly surface water quality sampling and field analysis was conducted on 27 June 2018 by AECOM. Laboratory analysis was performed by SRT NATA accredited laboratory. **Table 6-1** shows the total suspended solids, electrical conductivity and pH for the routine monthly monitoring.

Table 6-1 – MPO Surface Water Monitoring Results – June 2018

Sampling Point	pH	Electrical Conductivity (µs/cm)	Total Suspended Solids (mg/L)	Total Dissolved Solids (TDS) (mg/L)
W1	8.3	340	<1	203
W2	8.2	330	2	171
W3	8.2	330	4	179
W4	7.8	1850	1	1180
W5	*	*	*	*
W6A	8.2	330	2	180
W7	*	*	*	*
W9	*	*	*	*
W11	7.8	5650	1	3260
W12	8.0	4900	1	2830
W13	*	*	*	*
W14	*	*	*	*
W15	8.2	340	12	211
W1	8.3	340	<1	203
* dry or insufficient water x no suitable access point				

Five of the thirteen monitoring locations were found to be dry on the sampling day. All of the remaining sites sampled were below or inside the trigger level values during June 2018.

7. Groundwater Monitoring

Groundwater monitoring did not occur during June 2018. The next sampling quarterly monitoring event is scheduled for August 2018.

8. Noise Monitoring

In accordance with the MPO Noise Management Plan attended noise compliance monitoring is undertaken quarterly by a suitably qualified and experienced person. All monitoring measurements are undertaken during day, evening and night periods. Monitoring was undertaken in June 2018. See attached report for further detail.

9. Blast Monitoring

Results for June 2018 are presented in **Table 9-1**.

Table 9-1 – MPO Blast Monitoring Results – June 2018

Date Fired	Time Fired	Vibration BVOA	Overpressure BVOA	Vibration BVOC	Overpressure BVOC	Vibration BVO2	Overpressure BV02
2/06/18	9:38	0.240 mm/s	92.6 DBL	0.120 mm/s	78.7 DBL	1.180 mm/s	105.8 DBL
5/06/18	14:14	0.240 mm/s	92.6 DBL	0.120 mm/s	78.7 DBL	1.180 mm/s	105.8 DBL
8/06/18	14:03	0.380 mm/s	95.6 DBL	0.170 mm/s	103.6 DBL	1.640 mm/s	103.8 DBL
14/06/18	10:50	0.440 mm/s	90.6 DBL	0.480 mm/s	88.7 DBL	0.940 mm/s	101 DBL
16/06/18	16:30	0.360 mm/s	85.5 DBL	0.270 mm/s	79.8 DBL	1.080 mm/s	101.9 DBL
18/06/18	13:15	0.370 mm/s	101 DBL	0.180 mm/s	99.1 DBL	0.760 mm/s	106.9 DBL
22/06/18	16:00	0.150 mm/s	97.8 DBL	0.050 mm/s	97.8 DBL	0.290 mm/s	103.5 DBL
25/06/18	15:59	0.090 mm/s	84.6 DBL	0.040 mm/s	86 DBL	0.200 mm/s	92.4 DBL
28/06/18	13:09	0.930 mm/s	93.6 DBL	0.520 mm/s	87.8 DBL	1.930 mm/s	99.9 DBL

Blast results complied with all criteria at each monitoring site.

10. Meteorological Monitoring

Weather data is measured continuously at the Kayuga Road (M-WS4). Temperature (2m) and rainfall data are presented below. In addition to these parameters the weather station also measures wind, temperature (10m), solar radiation, humidity, atmospheric pressure, and sigma theta. All data was captured during June 2018.

Mount Pleasant Operation

EPL Noise Monitoring

Quarter 2 2018

Prepared for

MACH Energy Australia Pty Ltd



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Mount Pleasant Operation

EPL Noise Monitoring Quarter 2 2018

Reference: 18208_R01

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Global Acoustics Pty Ltd ~ Environmental noise modelling and impact assessment ~ Sound power testing ~ Noise control advice ~ Noise and vibration monitoring ~ OHS noise monitoring and advice ~ Expert evidence in Land and Environment and Compensation Courts ~ Architectural acoustics ~ Blasting assessments and monitoring ~ Noise management plans (NMP) ~ Sound level meter and noise logger sales and hire

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1 INTRODUCTION

1.1 Background

Global Acoustics was engaged by MACH Energy Australia to conduct noise monitoring around the development of Mount Pleasant Operation (MTP) near Muswellbrook, NSW.

Noise monitoring as described in this report was undertaken during the day, evening and night periods of 28 to 31 May 2018, at six monitoring locations in accordance with the MTP Environmental Protection Licence (EPL).

The purpose of the survey was to quantify and describe the acoustic environment around the site and compare results with specified limits.

1.2 Attended Noise Monitoring Locations

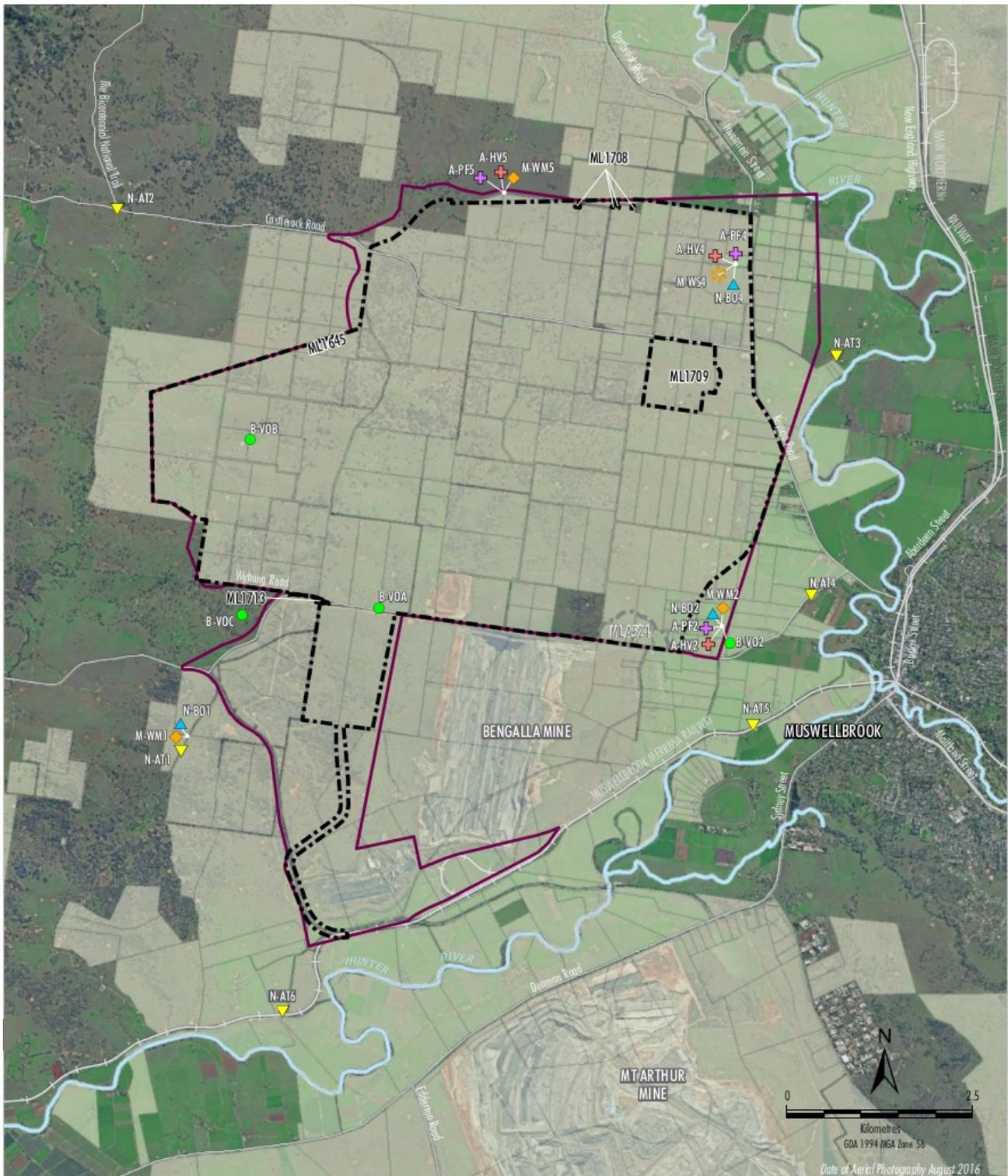
The six monitoring locations are detailed in Table 1.1 and shown on Figure 1. It should be noted that Figure 1 shows the actual monitoring positions, not the location of each residence. Monitoring locations represent each Noise Affected Groups (NAG) as detailed in the Noise Management Plan (NMP). The location of each NAG is shown in Appendix A.

Table 1.1: ATTENDED NOISE MONITORING LOCATIONS

Descriptor	NAG Represented	Monitoring Location
N-AT1	1	120 Roxburgh Road
N-AT2	2	Castlerock Road, Kayuga
N-AT3	3/4/5	Wiltons Lane, Kayuga
N-AT4	6/7	381 Wybong Road, Muswellbrook
N-AT5	8/9	Logues Lane, Muswellbrook
N-AT6	10/11	Old Bengalla Road, Bengalla ¹

Notes:

1. Monitoring for N-AT6 was originally undertaken at 599 Roxburgh Road, Mangoola. This monitoring location was altered in February 2017 in order to better represent NAG 10/11.



Source: MACH Energy 2016 – N-AT6 has been modified in this image to represent the current monitoring location at Old Bengalla Road, Bengalla.

Figure 1: MTP Noise Monitoring Locations

1.3 Terminology & Abbreviations

Some definitions of terms and abbreviations, which may be used in this report, are provided in Table 1.2.

Table 1.2: TERMINOLOGY & ABBREVIATIONS

Descriptor	Definition
L _A	The A-weighted root mean squared (RMS) noise level at any instant
L _{Amax}	The maximum A-weighted noise level over a time period or for an event
L _{A1}	The noise level which is exceeded for 1 per cent of the time
L _{A10}	The noise level which is exceeded for 10 percent of the time, which is approximately the average of the maximum noise levels
L _{A50}	The noise level which is exceeded for 50 per cent of the time
L _{A90}	The level exceeded for 90 percent of the time, which is approximately the average of the minimum noise levels. The L _{A90} level is often referred to as the “background” noise level and is commonly used to determine noise criteria for assessment purposes
L _{Amin}	The minimum A-weighted noise level over a time period or for an event
L _{Aeq}	The average noise energy during a measurement period
dB(A)	Noise level measurement units are decibels (dB). The “A” weighting scale is used to describe human response to noise
SPL	Sound pressure level (SPL), fluctuations in pressure measured as 10 times a logarithmic scale, the reference pressure being 20 micropascals
Hertz (Hz)	Cycles per second, the frequency of fluctuations in pressure, sound is usually a combination of many frequencies together
VTG	Vertical temperature gradient in degrees Celsius per 100 metres altitude. Estimated from wind speed and sigma theta data
IA	Inaudible. When site noise is noted as IA then there was no site noise at the monitoring location
NM	Not Measurable. If site noise is noted as NM or <30 dB, this means some noise was audible but could not be quantified
Day	This is the period 7:00am to 6:00pm
Evening	This is the period 6:00pm to 10:00pm
Night	This is the period 10:00pm to 7:00am

2 PROJECT APPROVAL & CRITERIA

2.1 Mount Pleasant Project Approval

The most current project approval associated with activities at MTP is the development application 'DA 92/97 MOD2' (29 March 2017). Sections 1 to 9 of Schedule 3 of the development application detail specific environmental conditions relating to noise associated with construction and operation at MTP. Relevant sections of the project approval are reproduced in Appendix A.

2.2 Noise Management Plan

Noise monitoring requirements are detailed in the MTP 'Noise Management Plan' (NMP). The most recent version of the NMP was approved in June 2017. Relevant sections are reproduced in Appendix A.

2.3 Environmental Protection Licence

Environmental monitoring requirements are detailed in the Environmental Protection Licence (EPL) No. 20850. The most recent version of the EPL is dated August 2017 with relevant sections reproduced in Appendix A.

Details regarding attended noise locations and relevant criteria are detailed in section Section 2, L2. Further details regarding the attended noise monitoring requirements are specified in section 5 which specifies quarterly monitoring to be carried out at each location during the day, evening and night for 3 consecutive days (1.5 hours during the day period, 30 minutes during the evening period, and 1 hour during the night period).

2.4 MTP Site Only Noise Criteria

MTP site-only noise criteria, sourced from the EPL are detailed in Table 2.1.

Table 2.1: EPL SITE ONLY NOISE CRITERIA, dB

Descriptor	Monitoring Location	Applicable EPL location	Day/Evening/Night Criterion L _{Aeq,15min} ¹	Night Criterion L _{A1,1min}
N-AT1	120 Roxburgh Road	NAG 1 – All other privately owned land	35	45
N-AT2	Castlerock Road, Kayuga	NAG 2 – All other privately owned land	35	45
N-AT3	Wiltons Lane, Kayuga	NAG 3/NAG 4 – All other privately owned land	35	45
N-AT4	381 Wybong Road, Muswellbrook	NAG6 – All other privately owned land	37	45
N-AT5	Logues Lane, Muswellbrook	NAG8 – Assessment locations 23 and 84	40	45
N-AT6	Old Bengalla Road, Bengalla ²	NAG 10 – All other privately owned land	35	45

Notes:

1. The most conservative NAG criterion represented by each monitoring location was selected; and
2. While monitoring for N-AT6 was originally carried out at 599 Roxburgh Road, Mangoola, this monitoring location has been altered as of February 2017 in order to better represent NAG 10/11.

The EPL outlines the required meteorological conditions in Section 3, Limit Conditions, as follows:

L2.3 The noise limits set out in this licence apply under all meteorological conditions except for the following:

- a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
- b) Stability category F temperature inversion conditions and wind speeds greater than 2metres/second at 10 metres above ground level; or
- c) Stability category G temperature inversion conditions.

For the purposes of assessing quarterly compliance, the meteorological conditions noted above have been used in accordance with the EPL.

2.5 Cumulative Noise Criteria

Cumulative noise criteria are outlined in Table 2.2. All reasonable and feasible measures must be taken to ensure that the noise generated by MTP combined with the noise of other mines in the area does not exceed this criteria at any residence on privately-owned land or on more than 25 per cent of any privately-owned land.

Table 2.2: MTP CUMULATIVE NOISE CRITERIA, dB^{1,2,3}

Location	Day LAeq,15min	Evening LAeq,15min	Night LAeq,15min
NAG 8 and 9	55	45	40
All other privately-owned land	50	45	40

Notes:

1. Levels sources from Schedule 3, Condition 5 of Project Approval DA92/97;
2. N-AT5 is the only attended monitoring location within NAG 8 and 9; and
3. By definition, cumulative noise refers to noise from MTP in conjunction with noise from one or more other mines. If MTP is inaudible or the only noise source, the measured cumulative noise is defined as 'Nil'.

2.6 Modifying Factors

The EPA 'Noise Policy for Industry' (NPfI, 2017) was approved for use in NSW in October 2017, and supersedes the EPA's Industrial Noise Policy (INP, 2000). Assessment and reporting of modifying factors is to be carried out in accordance with Fact Sheet C of the NPfI.

NPfI modifying factors, as they are applicable to mining noise, are described in more detail below.

2.6.1 Tonal and Intermittent Noise

As defined in the NPfI:

Tonal noise contains a prominent frequency and is characterised by a definite pitch.

Intermittent noise is noise where the level suddenly drops/increases several times during the assessment period, with a noticeable change in source noise level of at least 5 dB(A); for example, equipment cycling on and off. The intermittency correction is not intended to be applied to changes in noise level due to meteorology.

There were no intermittent noise sources from site during the survey. In addition, there is no equipment on site that is likely to generate tonal noise as defined in the NPfI.

2.6.2 Low Frequency Noise

As defined in the NPfI:

Low frequency noise is noise with an unbalanced spectrum and containing major components within the low-frequency range (10 – 160 Hz) of the frequency spectrum.

The NPfI contains the current method of assessing low frequency noise, which is a 2 step process as detailed below:

Measure/assess source contribution C-weighted and A-weighted $L_{eq,T}$ levels over the same time period. The low frequency noise modifying factor correction is to be applied where the C-A level is 15 dB or more and:

- *where any of the 1/3 octave noise levels in Table C2 are exceeded by **up to and including** 5 dB and cannot be mitigated, a 2 dBA positive adjustment to measured A weighted levels applies for the evening/night period; and*
- *where any of the 1/3 octave noise levels in Table C2 are exceeded by **more than** 5 dB and cannot be mitigated, a 5 dBA positive adjustment to measured A weighted levels applies for the evening/night period and a 2 dBA positive adjustment applies for the daytime period.*

Table C2 and associated notes from the NPfI is reproduced below:

Table C2: One-third octave low-frequency noise thresholds.

Hz/dB(Z)	One-third octave $L_{Zeq,15min}$ threshold level												
Frequency (Hz)	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
dB(Z)	92	89	86	77	69	61	54	50	50	48	48	46	44

Notes:

- dB(Z) = decibel (Z frequency weighted).
- For the assessment of low-frequency noise, care should be taken to select a wind screen that can protect the microphone from wind-induced noise characteristics at least 10 dB below the threshold values in Table C2 for

wind speeds up to 5 metres per second. It is likely that high performance larger diameter wind screens (nominally 175 mm) will be required to achieve this performance (Hessler, 2008). In any case, the performance of the wind screen and wind speeds at which data will be excluded needs to be stated.

- Low-frequency noise corrections only apply under the standard and/or noise-enhancing meteorological conditions.
- Where a receiver location has had architectural acoustic treatment applied (including alternative means of mechanical ventilation satisfying the Building Code of Australia) by a proponent, as part of consent requirements or as a private negotiated agreement, alternative external low-frequency noise assessment criteria may be proposed to account for the higher transmission loss of the building façade.
- Measurements should be made between 1.2 and 1.5 metres above ground level unless otherwise approved through a planning instrument (consent/approval) or environment protection licence, and at locations nominated in the development consent or licence.

3 METHODOLOGY

3.1 Overview

Attended monitoring was conducted in accordance with EPA guidelines and Australian Standard AS1055 'Acoustics, Description and Measurement of Environmental Noise'. On-site atmospheric condition measurement was also undertaken.

Meteorological data was obtained from the MTP weather station. This data allowed correlation of atmospheric parameters and measured noise levels. VTG was calculated from sigma theta values in accordance with EPA guidelines.

3.2 Attended Noise Monitoring

Monitoring was conducted during the day, evening and night periods at each monitoring location over three consecutive days. Each day involved six consecutive measurements during the day period, two consecutive measurements during the evening period and four consecutive measurements during the night period. The duration of each individual measurement was 15 minutes.

Attended monitoring for this report was undertaken by Amanda Borserio, Tambalyn Durney and Ryan Bruniges.

Attended monitoring is preferred to the use of noise loggers when determining compliance with prescribed limits as it allows the most accurate determination of the contribution, if any, to measured noise levels by the source of interest, in this case MTP.

If the exact contribution of the source of interest cannot be established, due to masking by other noise sources in a similar frequency range, but site noise levels are observed to be well below (more than 5 dB lower than) any relevant criterion, a maximum estimate of the potential contribution of the site might be made based on other measured site-only noise levels, for example, L_{A10} , L_{A50} or L_{A90} . This is generally expressed as a 'less than' quantity, such as <20 dB or <30 dB.

The terms 'Inaudible' (IA) or 'Not Measurable' (NM) may also be used in this report. When site noise is noted as IA, no site noise was audible at the monitoring location. When site noise is noted as NM, this means some noise was audible but could not be quantified. If site noise was NM due to masking but estimated to be significant in relation to a relevant criterion, we would employ alternative methods (e.g. measure closer and back calculate) to determine a value for reporting.

Therefore, all sites noted as NM in this report are due to one or more of the following reasons:

- site noise levels were extremely low and unlikely, in many cases, to be even noticed;
- site noise levels were masked by another relatively loud noise source that is characteristic of the environment (e.g. breeze in foliage or continuous road traffic noise) that cannot be eliminated by moving closer; and/or it was not feasible or reasonable to employ methods such as move closer and

back calculate. Cases may include, but are not limited to, rough terrain preventing closer measurement, addition/removal of significant source to receiver shielding caused by moving closer, and meteorological conditions where back calculation may not be accurate.

A measurement of $L_{A1,1\text{minute}}$ corresponds to the highest noise level generated for 0.6 second during one minute. In practical terms this was quantified by measuring or estimating the highest noise level emitted from a site noise source during the entire measurement period (i.e. the highest level of the worst minute during the 15 minute measurement).

3.3 Modifying Factors

Years of monitoring have indicated that noise levels from mining operations, particularly those measured at significant distances from the source are relatively continuous and broad spectrum. Given this, noise levels from MTP at the monitoring locations are unlikely to be intermittent or tonal.

Assessment of low-frequency modifying factors is necessary when application of the maximum correction could potentially result in an exceedance of the relevant site-only L_{Aeq} criterion. Low-frequency analysis is therefore undertaken for measurements in this report where:

- meteorological conditions resulted in criteria being applicable;
- contributions from MTP were audible and directly measurable, such that the site-only L_{Aeq} was not "NM" or less than a maximum cut off value (e.g. "<20 dB" or "<30dB");
- contributions from MTP were within 5 dB of the relevant L_{Aeq} criterion, as 5 dB is the maximum penalty that can be applied by low-frequency modifying factors; and
- MTP was the dominant low-frequency noise source.

All measurements meeting these conditions were evaluated for possible low frequency penalty applicability in accordance with the NPfI.

3.4 Attended Noise Monitoring Equipment

Table 3.1 lists the equipment used to measure environmental noise levels. Calibration certificates are provided in Appendix B.

Table 3.1: ATTENDED NOISE MONITORING EQUIPMENT

Model	Serial Number	Calibration Due Date
Rion NA-28 sound level analyser	00701424	05/06/2019
Rion NA-28 sound level analyser	00370304	16/11/2018
Rion NA-28 sound level analyser	1070590	25/06/2020
Pulsar 106 acoustic calibrator	74813	05/06/2019
Pulsar 106 acoustic calibrator	81334	18/12/2019
Pulsar 106 acoustic calibrator	79631	30/03/2019

4 RESULTS

4.1 Operational Information

Activities occurring during the day, evening and night periods of 28 to 31 May 2018 were supplied by MTP and are detailed in Table 4.1.

Table 4.1: MTP ACTIVITIES – QUARTER 2 2018

Areas of Operation	Equipment
Pit A, Pit D, and Main Haul Road	Dozers, excavators, trucks, water carts, graders, drills.

4.2 Attended Noise Monitoring

4.2.1 Overall Noise Levels

Overall noise levels measured at each location during attended measurements are provided in Table 4.2.

Table 4.2: MEASURED NOISE LEVELS – QUARTER 2 2018

Location	Start Date and Time	L _{Amax} dB	L _{A1} dB	L _{A10} dB	L _{A50} dB	L _{Aeq} dB	L _{A90} dB	L _{Amin} dB	L _{Ceq} dB
Day									
N-AT1	28/05/2018 15:45	47	39	29	24	28	21	19	54
N-AT1	28/05/2018 16:00	50	45	37	30	34	26	23	56
N-AT1	28/05/2018 16:15	55	46	35	30	35	28	25	56
N-AT1	28/05/2018 16:32	76	47	37	32	43	29	25	53
N-AT1	28/05/2018 16:49	61	52	39	31	39	27	25	52
N-AT1	28/05/2018 17:06	68	57	48	37	45	31	27	61
N-AT1	29/05/2018 14:09	64	50	40	33	39	27	24	63
N-AT1	29/05/2018 14:25	56	48	39	33	37	29	26	61
N-AT1	29/05/2018 14:41	58	42	37	32	35	28	25	59
N-AT1	29/05/2018 14:58	51	43	38	32	35	28	26	61
N-AT1	29/05/2018 15:13	54	44	37	31	34	27	24	60
N-AT1	29/05/2018 15:29	73	54	39	32	43	27	22	51
N-AT1	30/05/2018 12:58	58	52	48	44	45	40	37	69
N-AT1	30/05/2018 13:14	62	54	48	44	46	37	32	69
N-AT1	30/05/2018 13:30	58	52	48	45	46	42	40	69
N-AT1	30/05/2018 13:46	59	54	50	46	47	43	40	71
N-AT1	30/05/2018 14:02	66	57	52	49	50	46	43	73
N-AT1	30/05/2018 14:19	65	57	53	49	50	45	40	73
N-AT2	28/05/2018 16:19	57	51	43	33	39	26	18	54

Location	Start Date and Time	L _{Amax} dB	L _{A1} dB	L _{A10} dB	L _{A50} dB	L _{Aeq} dB	L _{A90} dB	L _{Amin} dB	L _{Ceq} dB
N-AT2	28/05/2018 16:38	63	54	38	27	39	21	17	53
N-AT2	28/05/2018 16:53	58	52	42	26	39	18	15	56
N-AT2	28/05/2018 17:10	80	59	40	21	53	17	15	60
N-AT2	28/05/2018 17:25	85	61	39	19	56	16	14	60
N-AT2	28/05/2018 17:40	75	53	33	20	47	16	15	57
N-AT2	29/05/2018 14:57	85	71	43	28	58	20	18	61
N-AT2	29/05/2018 15:12	80	54	39	27	51	21	18	54
N-AT2	29/05/2018 15:27	84	68	44	30	57	21	17	62
N-AT2	29/05/2018 15:45	84	67	42	34	57	27	23	64
N-AT2	29/05/2018 16:00	80	58	37	29	53	25	21	59
N-AT2	29/05/2018 16:15	86	61	36	27	57	22	17	62
N-AT2	30/05/2018 13:07	81	58	52	45	53	40	36	67
N-AT2	30/05/2018 13:23	59	57	51	42	47	36	32	66
N-AT2	30/05/2018 13:38	58	52	47	39	43	34	31	62
N-AT2	30/05/2018 13:54	78	58	54	46	52	41	37	69
N-AT2	30/05/2018 14:09	81	55	51	46	52	40	38	65
N-AT2	30/05/2018 14:25	81	64	55	49	56	44	40	70
N-AT3	28/05/2018 14:10	76	59	39	35	46	31	29	56
N-AT3	28/05/2018 14:25	75	57	57	37	47	34	31	NA
N-AT3	28/05/2018 14:40	75	57	48	36	47	33	29	55
N-AT3	28/05/2018 14:56	72	58	40	35	45	32	29	56
N-AT3	28/05/2018 15:11	74	58	39	33	46	30	27	55
N-AT3	28/05/2018 15:26	73	60	42	35	46	31	29	56
N-AT3	29/05/2018 11:39	66	50	40	33	39	27	24	55
N-AT3	29/05/2018 11:54	58	44	32	27	32	25	23	50
N-AT3	29/05/2018 12:10	63	42	33	29	35	26	24	52
N-AT3	29/05/2018 12:25	68	43	37	30	37	27	25	52
N-AT3	29/05/2018 12:40	70	46	41	35	40	30	26	52
N-AT3	29/05/2018 12:55	66	53	40	35	41	29	26	53
N-AT3	30/05/2018 11:08	70	57	53	50	51	45	40	74
N-AT3	30/05/2018 11:24	64	53	49	43	46	37	30	69
N-AT3	30/05/2018 11:40	68	54	47	42	45	36	31	67
N-AT3	30/05/2018 11:55	72	52	48	41	45	34	31	69
N-AT3	30/05/2018 12:11	60	52	48	44	45	38	33	69
N-AT3	30/05/2018 12:28	61	55	52	48	49	41	37	73
N-AT4	28/05/2018 14:00	76	66	52	36	53	32	29	60

Location	Start Date and Time	L _{Amax} dB	L _{A1} dB	L _{A10} dB	L _{A50} dB	L _{Aeq} dB	L _{A90} dB	L _{Amin} dB	L _{Ceq} dB
N-AT4	28/05/2018 14:19	78	66	55	37	54	31	29	61
N-AT4	28/05/2018 14:35	79	70	52	37	56	32	29	60
N-AT4	28/05/2018 14:53	81	74	56	38	59	34	30	63
N-AT4	28/05/2018 15:12	79	72	57	41	58	34	30	64
N-AT4	28/05/2018 15:29	80	74	60	44	60	37	33	64
N-AT4	29/05/2018 13:55	81	72	55	43	58	38	33	65
N-AT4	29/05/2018 14:14	79	70	52	42	56	38	36	65
N-AT4	29/05/2018 14:31	79	74	53	41	58	38	34	62
N-AT4	29/05/2018 14:51	80	70	54	49	57	46	35	65
N-AT4	29/05/2018 15:08	80	70	51	42	56	38	35	62
N-AT4	29/05/2018 15:30	79	73	58	44	59	39	33	63
N-AT4	30/05/2018 13:14	85	77	59	48	63	44	41	72
N-AT4	30/05/2018 13:37	81	72	54	48	58	44	41	74
N-AT4	30/05/2018 13:52	83	73	56	49	59	45	40	74
N-AT4	30/05/2018 14:07	81	73	57	51	59	46	41	75
N-AT4	30/05/2018 14:22	83	76	59	52	62	48	44	76
N-AT4	30/05/2018 14:37	84	74	59	52	61	48	43	75
N-AT5	28/05/2018 15:57	77	75	46	35	61	33	31	65
N-AT5	28/05/2018 16:15	59	51	42	37	40	34	32	55
N-AT5	28/05/2018 16:31	77	72	65	40	61	37	35	66
N-AT5	28/05/2018 16:49	71	59	43	40	48	37	35	59
N-AT5	28/05/2018 17:09	61	56	47	43	45	40	35	60
N-AT5	28/05/2018 17:29	54	45	43	42	42	40	37	55
N-AT5	29/05/2018 16:00	72	69	65	35	59	30	26	64
N-AT5	29/05/2018 16:18	55	49	39	35	38	31	28	53
N-AT5	29/05/2018 16:35	60	53	43	34	41	31	28	55
N-AT5	29/05/2018 16:53	69	67	64	37	58	34	32	66
N-AT5	29/05/2018 17:09	73	71	69	39	61	35	31	70
N-AT5	29/05/2018 17:27	62	54	42	35	42	32	29	54
N-AT5	30/05/2018 10:50	55	52	46	42	44	40	37	65
N-AT5	30/05/2018 10:50	55	52	46	42	44	40	37	65
N-AT5	30/05/2018 11:27	80	76	71	45	65	40	37	74
N-AT5	30/05/2018 11:42	69	67	60	41	56	38	35	68
N-AT5	30/05/2018 11:57	63	53	45	41	44	37	34	59
N-AT5	30/05/2018 12:12	87	67	65	42	60	36	33	72
N-AT6	28/05/2018 13:57	77	45	35	29	44	27	25	55

Location	Start Date and Time	L _{Amax} dB	L _{A1} dB	L _{A10} dB	L _{A50} dB	L _{Aeq} dB	L _{A90} dB	L _{Amin} dB	L _{Ceq} dB
N-AT6	28/05/2018 14:12	45	37	32	28	30	26	24	55
N-AT6	28/05/2018 14:28	79	73	69	29	62	25	24	70
N-AT6	28/05/2018 14:43	57	44	31	26	33	23	22	54
N-AT6	28/05/2018 14:59	87	71	64	27	60	24	21	68
N-AT6	28/05/2018 15:16	67	52	39	30	40	26	23	55
N-AT6	29/05/2018 12:18	56	39	34	30	32	27	25	55
N-AT6	29/05/2018 12:34	88	75	70	31	63	28	25	74
N-AT6	29/05/2018 12:50	84	42	33	31	52	28	25	57
N-AT6	29/05/2018 13:07	44	38	33	30	31	28	26	56
N-AT6	29/05/2018 13:24	58	44	35	29	33	27	25	53
N-AT6	29/05/2018 13:39	58	48	40	31	37	28	27	57
N-AT6	30/05/2018 11:07	80	75	70	46	64	39	36	74
N-AT6	30/05/2018 11:23	66	58	54	50	51	46	42	73
N-AT6	30/05/2018 11:39	86	78	60	50	67	40	35	77
N-AT6	30/05/2018 11:55	60	53	50	44	46	41	35	68
N-AT6	30/05/2018 12:11	84	76	71	45	65	40	37	74
N-AT6	30/05/2018 12:27	82	75	52	47	60	43	40	71
Evening									
N-AT1	28/05/2018 20:22	41	38	34	32	32	30	28	54
N-AT1	28/05/2018 20:38	42	38	35	33	33	31	29	52
N-AT1	29/05/2018 20:15	44	42	40	38	38	33	25	54
N-AT1	29/05/2018 20:31	53	45	39	36	37	29	25	52
N-AT1	30/05/2018 20:14	51	40	37	34	35	33	31	58
N-AT1	30/05/2018 20:31	47	42	37	34	35	33	31	58
N-AT2	28/05/2018 18:00	85	56	31	18	54	17	16	58
N-AT2	28/05/2018 18:15	49	44	37	22	32	17	15	54
N-AT2	29/05/2018 21:23	77	56	31	20	48	20	18	56
N-AT2	29/05/2018 21:41	54	44	26	21	32	20	19	54
N-AT2	30/05/2018 21:22	50	48	44	37	40	33	30	56
N-AT2	30/05/2018 21:37	51	50	45	40	42	37	34	58
N-AT3	28/05/2018 21:20	54	51	48	39	43	33	30	55
N-AT3	28/05/2018 21:35	55	47	40	35	38	32	29	52
N-AT3	29/05/2018 20:20	58	49	45	37	41	33	31	58
N-AT3	29/05/2018 20:36	47	42	39	37	37	35	33	58
N-AT3	30/05/2018 20:34	52	41	37	34	35	33	30	62

Location	Start Date and Time	L _{Amax} dB	L _{A1} dB	L _{A10} dB	L _{A50} dB	L _{Aeq} dB	L _{A90} dB	L _{Amin} dB	L _{Ceq} dB
N-AT3	30/05/2018 20:49	48	42	37	34	35	33	29	57
N-AT4	28/05/2018 21:16	58	54	40	35	40	33	32	55
N-AT4	28/05/2018 21:33	62	49	41	37	41	34	33	54
N-AT4	29/05/2018 20:21	62	51	41	35	40	33	31	52
N-AT4	29/05/2018 20:39	53	48	42	38	40	36	34	57
N-AT4	30/05/2018 20:31	75	60	43	36	49	34	32	58
N-AT4	30/05/2018 20:51	57	46	42	37	39	35	33	59
N-AT5	28/05/2018 18:02	77	75	68	48	64	44	41	73
N-AT5	28/05/2018 18:19	65	61	47	43	48	38	34	59
N-AT5	29/05/2018 21:10	57	50	42	37	40	35	32	56
N-AT5	30/05/2018 21:21	46	41	39	37	38	36	34	54
N-AT5	30/05/2018 21:38	79	71	59	42	57	39	36	68
N-AT6	28/05/2018 21:12	81	74	70	40	63	36	34	76
N-AT6	28/05/2018 21:29	45	41	39	37	37	34	32	53
N-AT6	29/05/2018 20:59	54	51	41	39	41	38	36	57
N-AT6	29/05/2018 21:15	52	41	39	38	38	36	34	56
N-AT6	30/05/2018 21:05	50	48	45	42	43	39	36	63
N-AT6	30/05/2018 21:21	78	71	68	43	61	39	36	75
Night									
N-AT1	28/05/2018 23:18	42	38	37	35	35	34	31	53
N-AT1	28/05/2018 23:35	50	42	38	36	37	34	32	56
N-AT1	28/05/2018 23:50	45	41	40	37	38	36	33	55
N-AT1	29/05/2018 00:06	47	40	38	36	37	35	33	55
N-AT1	29/05/2018 23:30	49	44	36	29	33	25	23	57
N-AT1	29/05/2018 23:46	46	40	37	33	34	31	29	59
N-AT1	30/05/2018 00:02	48	38	34	31	32	29	26	56
N-AT1	30/05/2018 00:18	43	38	34	31	32	27	25	57
N-AT1	30/05/2018 23:18	52	44	39	37	38	36	34	65
N-AT1	30/05/2018 23:34	52	45	39	37	38	35	33	66
N-AT1	30/05/2018 23:50	49	45	40	37	38	35	33	66
N-AT1	31/05/2018 00:06	47	41	38	36	36	34	32	64
N-AT2	28/05/2018 23:20	38	28	17	16	18	15	15	54
N-AT2	28/05/2018 23:36	37	22	17	16	17	15	14	54
N-AT2	28/05/2018 23:51	38	25	20	16	18	15	14	54
N-AT2	29/05/2018 00:06	44	35	24	17	23	15	14	54

Location	Start Date and Time	L _{Amax} dB	L _{A1} dB	L _{A10} dB	L _{A50} dB	L _{Aeq} dB	L _{A90} dB	L _{Amin} dB	L _{Ceq} dB
N-AT2	29/05/2018 22:00	38	26	23	22	22	21	20	53
N-AT2	29/05/2018 22:15	39	33	29	25	27	23	22	49
N-AT2	29/05/2018 22:30	44	38	35	30	32	26	24	54
N-AT2	29/05/2018 22:45	40	38	33	28	30	26	25	53
N-AT2	30/05/2018 22:00	45	44	40	36	37	34	32	55
N-AT2	30/05/2018 22:15	46	43	36	33	34	31	29	53
N-AT2	30/05/2018 22:30	50	48	43	37	40	33	32	56
N-AT2	30/05/2018 22:45	50	47	44	38	40	33	30	57
N-AT3	28/05/2018 22:00	47	42	39	35	37	32	29	54
N-AT3	28/05/2018 22:15	58	45	42	37	39	32	29	54
N-AT3	28/05/2018 22:30	44	40	38	35	35	32	29	54
N-AT3	28/05/2018 22:45	41	38	36	33	34	31	29	54
N-AT3	29/05/2018 23:18	54	44	38	34	36	32	29	59
N-AT3	29/05/2018 23:34	55	50	45	38	41	34	30	68
N-AT3	29/05/2018 23:49	50	47	43	36	39	32	27	66
N-AT3	30/05/2018 00:04	51	46	42	38	39	34	31	66
N-AT3	30/05/2018 23:17	45	38	36	34	35	33	31	56
N-AT3	30/05/2018 23:32	45	39	36	34	35	33	31	56
N-AT3	30/05/2018 23:47	43	37	36	35	35	34	31	56
N-AT3	31/05/2018 00:02	46	37	36	35	35	33	31	57
N-AT4	28/05/2018 22:01	69	54	44	35	44	33	31	54
N-AT4	28/05/2018 22:20	60	50	38	32	38	31	29	54
N-AT4	28/05/2018 22:37	44	38	35	33	33	31	29	55
N-AT4	28/05/2018 22:53	48	42	37	34	35	32	30	54
N-AT4	29/05/2018 23:12	52	47	40	37	38	34	31	56
N-AT4	29/05/2018 23:27	46	41	37	33	34	31	28	55
N-AT4	29/05/2018 23:43	57	51	43	36	40	34	32	66
N-AT4	29/05/2018 23:59	53	42	38	35	36	33	31	61
N-AT4	30/05/2018 23:18	54	47	42	38	39	36	34	56
N-AT4	30/05/2018 23:34	55	41	39	37	38	36	34	55
N-AT4	30/05/2018 23:49	49	42	39	37	38	36	34	55
N-AT4	31/05/2018 00:04	48	40	38	37	37	36	35	55
N-AT5	28/05/2018 23:21	42	38	35	32	33	29	27	54
N-AT5	28/05/2018 23:36	63	54	40	36	41	33	30	55
N-AT5	28/05/2018 23:56	48	40	37	34	35	31	28	55

Location	Start Date and Time	L _{Amax} dB	L _{A1} dB	L _{A10} dB	L _{A50} dB	L _{Aeq} dB	L _{A90} dB	L _{Amin} dB	L _{Ceq} dB
N-AT5	29/05/2018 00:42	66	55	43	31	42	29	27	55
N-AT5	29/05/2018 22:01	71	68	66	40	60	37	35	69
N-AT5	29/05/2018 22:16	71	69	68	39	60	37	34	71
N-AT5	29/05/2018 22:32	72	71	61	39	58	37	35	67
N-AT5	29/05/2018 22:47	46	41	39	37	37	35	32	55
N-AT5	30/05/2018 22:03	65	44	42	40	40	38	35	65
N-AT5	30/05/2018 22:19	54	47	40	37	39	36	34	59
N-AT5	30/05/2018 22:38	49	44	39	37	38	36	34	55
N-AT5	30/05/2018 22:54	54	48	39	37	39	35	33	57
N-AT6	28/05/2018 22:00	50	45	41	38	39	36	34	55
N-AT6	28/05/2018 22:16	47	43	41	39	39	38	35	55
N-AT6	28/05/2018 22:33	54	47	42	39	40	36	33	56
N-AT6	28/05/2018 22:49	46	43	39	36	37	35	34	54
N-AT6	29/05/2018 22:13	45	44	41	40	40	39	37	58
N-AT6	29/05/2018 22:29	79	72	69	39	61	38	37	75
N-AT6	29/05/2018 22:44	49	44	41	40	40	38	36	58
N-AT6	29/05/2018 23:00	75	69	63	42	57	41	39	68
N-AT6	30/05/2018 22:00	79	73	66	49	61	45	40	73
N-AT6	30/05/2018 22:15	59	53	51	47	48	44	39	68
N-AT6	30/05/2018 22:31	55	52	48	44	45	40	38	65
N-AT6	30/05/2018 22:47	56	53	51	47	48	43	40	67

Notes:

1. Levels in this table are not necessarily the result of activity at MTP; and
2. NA data unavailable due to technical difficulties.

4.2.2 Site Only Noise Levels

Table 4.3 compares measured $L_{Aeq,15\text{minute}}$ levels for MTP with site only noise criteria detailed in the EPL.

Table 4.3: $L_{Aeq,15\text{minute}}$ GENERATED BY MTP AGAINST NOISE CRITERIA – QUARTER 2 2018

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP L_{Aeq} dB ^{2,4}	Exceedance dB ^{3,4}
Day								
N-AT1	28/05/2018 15:45	1.0	-1.6	C	35	Yes	IA	Nil
N-AT1	28/05/2018 16:00	0.9	0.5	E	35	Yes	IA	Nil
N-AT1	28/05/2018 16:15	1.0	-1.0	D	35	Yes	IA	Nil
N-AT1	28/05/2018 16:32	1.0	-1.6	C	35	Yes	IA	Nil
N-AT1	28/05/2018 16:49	1.0	-1.0	D	35	Yes	IA	Nil
N-AT1	28/05/2018 17:06	0.8	-1.0	D	35	Yes	IA	Nil
N-AT1	29/05/2018 14:09	5.1	-1.0	D	35	No	IA	NA
N-AT1	29/05/2018 14:25	2.6	-1.8	B	35	Yes	IA	Nil
N-AT1	29/05/2018 14:41	4.2	-1.0	D	35	No	IA	NA
N-AT1	29/05/2018 14:58	2.5	-1.0	D	35	Yes	IA	Nil
N-AT1	29/05/2018 15:13	1.4	-1.8	B	35	Yes	IA	Nil
N-AT1	29/05/2018 15:29	0.9	-2.0	A	35	Yes	IA	Nil
N-AT1	30/05/2018 12:58	7.8	-1.0	D	35	No	IA	NA
N-AT1	30/05/2018 13:14	7.0	-1.0	D	35	No	IA	NA
N-AT1	30/05/2018 13:30	6.3	-1.0	D	35	No	IA	NA
N-AT1	30/05/2018 13:46	7.2	-1.0	D	35	No	IA	NA
N-AT1	30/05/2018 14:02	9.4	0.5	E	35	No	IA	NA
N-AT1	30/05/2018 14:19	7.0	-1.0	D	35	No	IA	NA
N-AT2	28/05/2018 16:19	1.0	-1.0	D	35	Yes	IA	Nil
N-AT2	28/05/2018 16:38	1.0	-1.0	D	35	Yes	IA	Nil
N-AT2	28/05/2018 16:53	1.3	0.5	E	35	Yes	IA	Nil
N-AT2	28/05/2018 17:10	0.8	-1.0	D	35	Yes	IA	Nil
N-AT2	28/05/2018 17:25	0.7	-1.0	D	35	Yes	IA	Nil
N-AT2	28/05/2018 17:40	0.7	-1.6	C	35	Yes	IA	Nil
N-AT2	29/05/2018 14:57	2.5	-1.0	D	35	Yes	IA	Nil
N-AT2	29/05/2018 15:12	1.3	-1.6	C	35	Yes	IA	Nil
N-AT2	29/05/2018 15:27	0.9	-2.0	A	35	Yes	IA	Nil
N-AT2	29/05/2018 15:45	4.1	-1.6	C	35	No	IA	NA
N-AT2	29/05/2018 16:00	4.9	-1.0	D	35	No	IA	NA
N-AT2	29/05/2018 16:15	3.4	0.5	E	35	No	IA	NA

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP LAeq dB ^{2,4}	Exceedance dB ^{3,4}
N-AT2	30/05/2018 13:07	8.3	-1.0	D	35	No	IA	NA
N-AT2	30/05/2018 13:23	6.3	-1.0	D	35	No	IA	NA
N-AT2	30/05/2018 13:38	8.0	-1.0	D	35	No	IA	NA
N-AT2	30/05/2018 13:54	8.1	-1.0	D	35	No	IA	NA
N-AT2	30/05/2018 14:09	9.4	0.5	E	35	No	IA	NA
N-AT2	30/05/2018 14:25	6.0	-1.6	C	35	No	IA	NA
N-AT3	28/05/2018 14:10	1.9	-1.0	D	35	Yes	IA	Nil
N-AT3	28/05/2018 14:25	2.5	0.5	E	35	Yes	IA	NA
N-AT3	28/05/2018 14:40	1.7	-1.8	B	35	Yes	IA	Nil
N-AT3	28/05/2018 14:56	1.2	-1.8	B	35	Yes	IA	Nil
N-AT3	28/05/2018 15:11	1.2	-1.0	D	35	Yes	IA	Nil
N-AT3	28/05/2018 15:26	1.1	-1.6	C	35	Yes	IA	Nil
N-AT3	29/05/2018 11:39	2.4	-1.6	C	35	Yes	IA	Nil
N-AT3	29/05/2018 11:54	1.8	-2.0	A	35	Yes	IA	Nil
N-AT3	29/05/2018 12:10	2.0	-2.0	A	35	Yes	IA	Nil
N-AT3	29/05/2018 12:25	1.5	-2.0	A	35	Yes	IA	Nil
N-AT3	29/05/2018 12:40	0.7	-2.0	A	35	Yes	IA	Nil
N-AT3	29/05/2018 12:55	1.5	-1.6	C	35	Yes	IA	Nil
N-AT3	30/05/2018 11:08	5.9	-1.0	D	35	No	IA	NA
N-AT3	30/05/2018 11:24	5.5	-1.6	C	35	No	IA	NA
N-AT3	30/05/2018 11:40	5.1	-1.6	C	35	No	IA	NA
N-AT3	30/05/2018 11:55	4.5	-1.6	C	35	No	IA	NA
N-AT3	30/05/2018 12:11	4.9	-1.6	C	35	No	IA	NA
N-AT3	30/05/2018 12:28	4.5	-1.6	C	35	No	IA	NA
N-AT4	28/05/2018 14:00	2.5	0.5	E	37	Yes	31	Nil
N-AT4	28/05/2018 14:19	1.7	-1.6	C	37	Yes	31	Nil
N-AT4	28/05/2018 14:35	1.7	-1.8	B	37	Yes	31	Nil
N-AT4	28/05/2018 14:53	1.2	-1.8	B	37	Yes	31	Nil
N-AT4	28/05/2018 15:12	1.2	-1.0	D	37	Yes	33	Nil
N-AT4	28/05/2018 15:29	1.1	-1.6	C	37	Yes	30	Nil
N-AT4	29/05/2018 13:55	4.9	-1.0	D	37	No	IA	NA
N-AT4	29/05/2018 14:14	3.3	-1.6	C	37	No	<30	NA
N-AT4	29/05/2018 14:31	2.6	-1.8	B	37	Yes	<30	Nil
N-AT4	29/05/2018 14:51	3.7	-1.0	D	37	No	NM	NA

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP LAeq dB ^{2,4}	Exceedance dB ^{3,4}
N-AT4	29/05/2018 15:08	1.3	-1.6	C	37	Yes	35	Nil
N-AT4	29/05/2018 15:30	0.9	-2.0	A	37	Yes	36	Nil
N-AT4	30/05/2018 13:14	7.0	-1.0	D	37	No	<35	NA
N-AT4	30/05/2018 13:37	8.0	-1.0	D	37	No	<35	NA
N-AT4	30/05/2018 13:52	7.2	-1.0	D	37	No	<35	NA
N-AT4	30/05/2018 14:07	9.4	0.5	E	37	No	<35	NA
N-AT4	30/05/2018 14:22	7.0	-1.0	D	37	No	<37	NA
N-AT4	30/05/2018 14:37	8.7	-1.0	D	37	No	<37	NA
N-AT5	28/05/2018 15:57	0.9	0.5	E	40	Yes	IA	Nil
N-AT5	28/05/2018 16:15	1.0	-1.0	D	40	Yes	IA	Nil
N-AT5	28/05/2018 16:31	1.0	-1.6	C	40	Yes	IA	Nil
N-AT5	28/05/2018 16:49	1.0	-1.0	D	40	Yes	IA	Nil
N-AT5	28/05/2018 17:09	0.8	-1.0	D	40	Yes	IA	Nil
N-AT5	28/05/2018 17:29	0.7	-1.0	D	40	Yes	IA	Nil
N-AT5	29/05/2018 16:00	4.9	-1.0	D	40	No	IA	NA
N-AT5	29/05/2018 16:18	3.4	0.5	E	40	No	IA	NA
N-AT5	29/05/2018 16:35	2.1	-1.0	D	40	Yes	IA	Nil
N-AT5	29/05/2018 16:53	1.7	0.5	E	40	Yes	IA	Nil
N-AT5	29/05/2018 17:09	2.0	0.5	E	40	Yes	IA	Nil
N-AT5	29/05/2018 17:27	2.0	0.5	E	40	Yes	IA	Nil
N-AT5	30/05/2018 10:50	5.9	-1.6	C	40	No	<30	NA
N-AT5	30/05/2018 10:50	5.9	-1.6	C	40	No	<30	NA
N-AT5	30/05/2018 11:27	5.5	-1.6	C	40	No	<30	NA
N-AT5	30/05/2018 11:42	5.1	-1.6	C	40	No	<35	NA
N-AT5	30/05/2018 11:57	4.5	-1.6	C	40	No	<35	NA
N-AT5	30/05/2018 12:12	4.9	-1.6	C	40	No	<35	NA
N-AT6	28/05/2018 13:57	2.5	0.5	E	35	Yes	IA	Nil
N-AT6	28/05/2018 14:12	1.7	-1.6	C	35	Yes	IA	Nil
N-AT6	28/05/2018 14:28	1.2	-1.8	B	35	Yes	IA	Nil
N-AT6	28/05/2018 14:43	1.6	-1.6	C	35	Yes	IA	Nil
N-AT6	28/05/2018 14:59	1.2	-1.8	B	35	Yes	IA	Nil
N-AT6	28/05/2018 15:16	1.5	-1.0	D	35	Yes	IA	Nil
N-AT6	29/05/2018 12:18	1.3	-2.0	A	35	Yes	IA	Nil
N-AT6	29/05/2018 12:34	0.7	-2.0	A	35	Yes	IA	Nil
N-AT6	29/05/2018 12:50	1.1	-2.0	A	35	Yes	IA	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP LAeq dB ^{2,4}	Exceedance dB ^{3,4}
N-AT6	29/05/2018 13:07	1.5	-2.0	A	35	Yes	IA	Nil
N-AT6	29/05/2018 13:24	1.8	-1.8	B	35	Yes	IA	Nil
N-AT6	29/05/2018 13:39	0.7	-2.0	A	35	Yes	IA	Nil
N-AT6	30/05/2018 11:07	5.9	-1.0	D	35	No	IA	NA
N-AT6	30/05/2018 11:23	5.5	-1.6	C	35	No	IA	NA
N-AT6	30/05/2018 11:39	5.1	-1.6	C	35	No	IA	NA
N-AT6	30/05/2018 11:55	4.5	-1.6	C	35	No	IA	NA
N-AT6	30/05/2018 12:11	4.9	-1.6	C	35	No	IA	NA
N-AT6	30/05/2018 12:27	4.5	-1.6	C	35	No	IA	NA
Evening								
N-AT1	28/05/2018 20:22	2.3	-1.0	D	35	Yes	IA	Nil
N-AT1	28/05/2018 20:38	1.7	-1.0	D	35	Yes	IA	Nil
N-AT1	29/05/2018 20:15	2.1	-1.0	D	35	Yes	IA	Nil
N-AT1	29/05/2018 20:31	2.6	0.5	E	35	Yes	IA	Nil
N-AT1	30/05/2018 20:14	2.3	0.5	E	35	Yes	IA	Nil
N-AT1	30/05/2018 20:31	3.6	-1.0	D	35	No	IA	NA
N-AT2	28/05/2018 18:00	0.4	3.0	F	35	Yes	IA	Nil
N-AT2	28/05/2018 18:15	0.9	-1.0	D	35	Yes	IA	Nil
N-AT2	29/05/2018 21:23	2.3	0.5	E	35	Yes	IA	Nil
N-AT2	29/05/2018 21:41	2.6	-1.0	D	35	Yes	IA	Nil
N-AT2	30/05/2018 21:22	2.9	-1.0	D	35	Yes	IA	Nil
N-AT2	30/05/2018 21:37	2.1	0.5	E	35	Yes	IA	Nil
N-AT3	28/05/2018 21:20	2.4	3.0	F	35	No	IA	NA
N-AT3	28/05/2018 21:35	2.6	3.0	F	35	No	IA	NA
N-AT3	29/05/2018 20:20	2.1	-1.0	D	35	Yes	IA	Nil
N-AT3	29/05/2018 20:36	2.7	-1.0	D	35	Yes	IA	Nil
N-AT3	30/05/2018 20:34	3.9	-1.0	D	35	No	IA	NA
N-AT3	30/05/2018 20:49	3.7	-1.0	D	35	No	IA	NA
N-AT4	28/05/2018 21:16	2.4	3.0	F	37	No	NM	NA
N-AT4	28/05/2018 21:33	2.6	3.0	F	37	No	IA	NA
N-AT4	29/05/2018 20:21	2.1	-1.0	D	37	Yes	IA	Nil
N-AT4	29/05/2018 20:39	2.7	-1.0	D	37	Yes	IA	Nil
N-AT4	30/05/2018 20:31	3.6	-1.0	D	37	No	IA	NA
N-AT4	30/05/2018 20:51	3.7	-1.0	D	37	No	IA	NA
N-AT5	28/05/2018 18:02	0.6	0.5	E	40	Yes	<30	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP LAeq dB ^{2,4}	Exceedance dB ^{3,4}
N-AT5	28/05/2018 18:19	0.9	-1.0	D	40	Yes	38	Nil
N-AT5	29/05/2018 21:10	2.3	-1.0	D	40	Yes	IA	Nil
N-AT5	30/05/2018 21:21	2.9	-1.0	D	40	Yes	IA	Nil
N-AT5	30/05/2018 21:38	2.1	0.5	E	40	Yes	IA	Nil
N-AT6	28/05/2018 21:12	2.4	3.0	F	35	No	IA	NA
N-AT6	28/05/2018 21:29	2.8	3.0	F	35	No	<30	NA
N-AT6	29/05/2018 20:59	2.6	-1.0	D	35	Yes	IA	Nil
N-AT6	29/05/2018 21:15	2.4	-1.0	D	35	Yes	IA	Nil
N-AT6	30/05/2018 21:05	3.3	-1.0	D	35	No	IA	NA
N-AT6	30/05/2018 21:21	2.9	-1.0	D	35	Yes	IA	Nil
Night								
N-AT1	28/05/2018 23:18	1.5	3	F	35	Yes	IA	Nil
N-AT1	28/05/2018 23:35	1.5	0.5	E	35	Yes	IA	Nil
N-AT1	28/05/2018 23:50	1.7	-1	D	35	Yes	IA	Nil
N-AT1	29/05/2018 00:06	0.6	0.5	E	35	Yes	IA	Nil
N-AT1	29/05/2018 23:30	2.7	-1	D	35	Yes	IA	Nil
N-AT1	29/05/2018 23:46	3.6	-1	D	35	No	IA	NA
N-AT1	30/05/2018 00:02	3.2	-1	D	35	No	IA	NA
N-AT1	30/05/2018 00:18	3.6	-1	D	35	No	IA	NA
N-AT1	30/05/2018 23:18	2.6	-1	D	35	Yes	IA	Nil
N-AT1	30/05/2018 23:34	2.3	-1	D	35	Yes	IA	Nil
N-AT1	30/05/2018 23:50	2.5	-1	D	35	Yes	IA	Nil
N-AT1	31/05/2018 00:06	2.4	-1	D	35	Yes	IA	Nil
N-AT2	28/05/2018 23:20	1.5	3.0	F	35	Yes	IA	Nil
N-AT2	28/05/2018 23:36	1.5	0.5	E	35	Yes	IA	Nil
N-AT2	28/05/2018 23:51	1.7	-1.0	D	35	Yes	IA	Nil
N-AT2	29/05/2018 00:06	0.6	0.5	E	35	Yes	IA	Nil
N-AT2	29/05/2018 22:00	2.8	-1.0	D	35	Yes	IA	Nil
N-AT2	29/05/2018 22:15	2.8	-1.0	D	35	Yes	IA	Nil
N-AT2	29/05/2018 22:30	2.4	-1.0	D	35	Yes	IA	Nil
N-AT2	29/05/2018 22:45	2.8	-1.0	D	35	Yes	IA	Nil
N-AT2	30/05/2018 22:00	2.2	-1.0	D	35	Yes	IA	Nil
N-AT2	30/05/2018 22:15	2.2	-1.0	D	35	Yes	IA	Nil
N-AT2	30/05/2018 22:30	1.6	3.0	F	35	Yes	IA	Nil
N-AT2	30/05/2018 22:45	1.9	3.0	F	35	Yes	IA	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP L _{Aeq} dB ^{2,4}	Exceedance dB ^{3,4}
N-AT3	28/05/2018 22:00	1.7	-1.0	D	35	Yes	IA	Nil
N-AT3	28/05/2018 22:15	0.1	3.0	F	35	Yes	IA	Nil
N-AT3	28/05/2018 22:30	0.4	3.0	F	35	Yes	IA	Nil
N-AT3	28/05/2018 22:45	0.8	-1.0	D	35	Yes	IA	Nil
N-AT3	29/05/2018 23:18	2.5	-1.0	D	35	Yes	IA	Nil
N-AT3	29/05/2018 23:34	4.3	-1.0	D	35	No	IA	NA
N-AT3	29/05/2018 23:49	3.6	-1.0	D	35	No	IA	NA
N-AT3	30/05/2018 00:04	2.9	-1.0	D	35	Yes	IA	Nil
N-AT3	30/05/2018 23:17	2.6	-1.0	D	35	Yes	IA	Nil
N-AT3	30/05/2018 23:32	2.6	-1.0	D	35	Yes	IA	Nil
N-AT3	30/05/2018 23:47	2.5	-1.0	D	35	Yes	IA	Nil
N-AT3	31/05/2018 00:02	1.9	0.5	E	35	Yes	IA	Nil
N-AT4	28/05/2018 22:01	1.7	-1.0	D	37	Yes	IA	Nil
N-AT4	28/05/2018 22:20	0.1	3.0	F	37	Yes	NM	Nil
N-AT4	28/05/2018 22:37	0.9	0.5	E	37	Yes	IA	Nil
N-AT4	28/05/2018 22:53	1.2	0.5	E	37	Yes	IA	Nil
N-AT4	29/05/2018 23:12	3.2	-1.0	D	37	No	IA	NA
N-AT4	29/05/2018 23:27	2.7	-1.0	D	37	Yes	IA	Nil
N-AT4	29/05/2018 23:43	3.6	-1.0	D	37	No	IA	NA
N-AT4	29/05/2018 23:59	3.2	-1.0	D	37	No	IA	NA
N-AT4	30/05/2018 23:18	2.6	-1.0	D	37	Yes	IA	Nil
N-AT4	30/05/2018 23:34	2.3	-1.0	D	37	Yes	IA	Nil
N-AT4	30/05/2018 23:49	2.5	-1.0	D	37	Yes	IA	Nil
N-AT4	31/05/2018 00:04	2.4	-1.0	D	37	Yes	IA	Nil
N-AT5	28/05/2018 23:21	1.5	3.0	F	40	Yes	IA	Nil
N-AT5	28/05/2018 23:36	1.5	0.5	E	40	Yes	IA	Nil
N-AT5	28/05/2018 23:56	1.5	-1.0	D	40	Yes	IA	Nil
N-AT5	29/05/2018 00:42	0.8	-1.0	D	40	Yes	IA	Nil
N-AT5	29/05/2018 22:01	2.8	-1.0	D	40	Yes	IA	Nil
N-AT5	29/05/2018 22:16	2.8	-1.0	D	40	Yes	IA	Nil
N-AT5	29/05/2018 22:32	2.8	-1.0	D	40	Yes	IA	Nil
N-AT5	29/05/2018 22:47	2.8	-1.0	D	40	Yes	IA	Nil
N-AT5	30/05/2018 22:03	1.9	-1.0	D	40	Yes	IA	Nil
N-AT5	30/05/2018 22:19	2.2	-1.0	D	40	Yes	IA	Nil
N-AT5	30/05/2018 22:38	1.8	3.0	F	40	Yes	IA	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP L _{Aeq} dB ^{2,4}	Exceedance dB ^{3,4}
N-AT5	30/05/2018 22:54	1.4	3.0	F	40	Yes	IA	Nil
N-AT6	28/05/2018 22:00	1.7	-1.0	D	35	Yes	<25	Nil
N-AT6	28/05/2018 22:16	0.1	3.0	F	35	Yes	NM	Nil
N-AT6	28/05/2018 22:33	0.9	0.5	E	35	Yes	IA	Nil
N-AT6	28/05/2018 22:49	0.8	-1.0	D	35	Yes	IA	Nil
N-AT6	29/05/2018 22:13	2.8	-1.0	D	35	Yes	IA	Nil
N-AT6	29/05/2018 22:29	2.4	-1.0	D	35	Yes	IA	Nil
N-AT6	29/05/2018 22:44	2.8	-1.0	D	35	Yes	IA	Nil
N-AT6	29/05/2018 23:00	3.0	-1.0	D	35	Yes	IA	Nil
N-AT6	30/05/2018 22:00	2.2	-1.0	D	35	Yes	IA	Nil
N-AT6	30/05/2018 22:15	2.2	-1.0	D	35	Yes	IA	Nil
N-AT6	30/05/2018 22:31	1.6	3.0	F	35	Yes	IA	Nil
N-AT6	30/05/2018 22:47	1.9	3.0	F	35	Yes	IA	Nil

Notes:

1. Noise emission limits apply do not apply during wind speeds greater than 3m/s at 10m above ground level, or 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;
2. Estimated or measured L_{Aeq,15minute} attributed to MTP;
3. NA in exceedance column means atmospheric conditions outside those specified in project approval and so criterion is not applicable; and
4. Bold results in red indicate exceedance of criteria.

Table 4.4 compares measured L_{A1,1minute} levels for MTP with site only noise criteria detailed in the EPL.

Table 4.4: L_{A1,1minute} GENERATED BY MTP AGAINST EPL NOISE CRITERIA – QUARTER 2 2018

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP L _{A1,1min} dB ^{2,4}	Exceedance dB ^{3,4}
Night								
N-AT1	28/05/2018 23:18	1.5	3.0	F	45	Yes	IA	Nil
N-AT1	28/05/2018 23:35	1.5	0.5	E	45	Yes	IA	Nil
N-AT1	28/05/2018 23:50	1.7	-1.0	D	45	Yes	IA	Nil
N-AT1	29/05/2018 00:06	0.6	0.5	E	45	Yes	IA	Nil
N-AT1	29/05/2018 23:30	2.7	-1.0	D	45	Yes	IA	Nil
N-AT1	29/05/2018 23:46	3.6	-1.0	D	45	No	IA	NA
N-AT1	30/05/2018 00:02	3.2	-1.0	D	45	No	IA	NA
N-AT1	30/05/2018 00:18	3.6	-1.0	D	45	No	IA	NA
N-AT1	30/05/2018 23:18	2.6	-1.0	D	45	Yes	IA	Nil
N-AT1	30/05/2018 23:34	2.3	-1.0	D	45	Yes	IA	Nil
N-AT1	30/05/2018 23:50	2.5	-1.0	D	45	Yes	IA	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP L _{A1,1min} dB ^{2,4}	Exceedance dB ^{3,4}
N-AT1	31/05/2018 00:06	2.4	-1.0	D	45	Yes	IA	Nil
N-AT2	28/05/2018 23:20	1.5	3.0	F	45	Yes	IA	Nil
N-AT2	28/05/2018 23:36	1.5	0.5	E	45	Yes	IA	Nil
N-AT2	28/05/2018 23:51	1.7	-1.0	D	45	Yes	IA	Nil
N-AT2	29/05/2018 00:06	0.6	0.5	E	45	Yes	IA	Nil
N-AT2	29/05/2018 22:00	2.8	-1.0	D	45	Yes	IA	Nil
N-AT2	29/05/2018 22:15	2.8	-1.0	D	45	Yes	IA	Nil
N-AT2	29/05/2018 22:30	2.4	-1.0	D	45	Yes	IA	Nil
N-AT2	29/05/2018 22:45	2.8	-1.0	D	45	Yes	IA	Nil
N-AT2	30/05/2018 22:00	2.2	-1.0	D	45	Yes	IA	Nil
N-AT2	30/05/2018 22:15	2.2	-1.0	D	45	Yes	IA	Nil
N-AT2	30/05/2018 22:30	1.6	3.0	F	45	Yes	IA	Nil
N-AT2	30/05/2018 22:45	1.9	3.0	F	45	Yes	IA	Nil
N-AT3	28/05/2018 22:00	1.7	-1.0	D	45	Yes	IA	Nil
N-AT3	28/05/2018 22:15	0.1	3.0	F	45	Yes	IA	Nil
N-AT3	28/05/2018 22:30	0.4	3.0	F	45	Yes	IA	Nil
N-AT3	28/05/2018 22:45	0.8	-1.0	D	45	Yes	IA	Nil
N-AT3	29/05/2018 23:18	2.5	-1.0	D	45	Yes	IA	Nil
N-AT3	29/05/2018 23:34	4.3	-1.0	D	45	No	IA	NA
N-AT3	29/05/2018 23:49	3.6	-1.0	D	45	No	IA	NA
N-AT3	30/05/2018 00:04	2.9	-1.0	D	45	Yes	IA	Nil
N-AT3	30/05/2018 23:17	2.6	-1.0	D	45	Yes	IA	Nil
N-AT3	30/05/2018 23:32	2.6	-1.0	D	45	Yes	IA	Nil
N-AT3	30/05/2018 23:47	2.5	-1.0	D	45	Yes	IA	Nil
N-AT3	31/05/2018 00:02	1.9	0.5	E	45	Yes	IA	Nil
N-AT4	28/05/2018 22:01	1.7	-1.0	D	45	Yes	IA	Nil
N-AT4	28/05/2018 22:20	0.1	3.0	F	45	Yes	NM	Nil
N-AT4	28/05/2018 22:37	0.9	0.5	E	45	Yes	IA	Nil
N-AT4	28/05/2018 22:53	1.2	0.5	E	45	Yes	IA	Nil
N-AT4	29/05/2018 23:12	3.2	-1.0	D	45	No	IA	NA
N-AT4	29/05/2018 23:27	2.7	-1.0	D	45	Yes	IA	Nil
N-AT4	29/05/2018 23:43	3.6	-1.0	D	45	No	IA	NA
N-AT4	29/05/2018 23:59	3.2	-1.0	D	45	No	IA	NA
N-AT4	30/05/2018 23:18	2.6	-1.0	D	45	Yes	IA	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	MTP L _{A1,1min} dB ^{2,4}	Exceedance dB ^{3,4}
N-AT4	30/05/2018 23:34	2.3	-1.0	D	45	Yes	IA	Nil
N-AT4	30/05/2018 23:49	2.5	-1.0	D	45	Yes	IA	Nil
N-AT4	31/05/2018 00:04	2.4	-1.0	D	45	Yes	IA	Nil
N-AT5	28/05/2018 23:21	1.5	3.0	F	45	Yes	IA	Nil
N-AT5	28/05/2018 23:36	1.5	0.5	E	45	Yes	IA	Nil
N-AT5	28/05/2018 23:56	1.5	-1.0	D	45	Yes	IA	Nil
N-AT5	29/05/2018 00:42	0.8	-1.0	D	45	Yes	IA	Nil
N-AT5	29/05/2018 22:01	2.8	-1.0	D	45	Yes	IA	Nil
N-AT5	29/05/2018 22:16	2.8	-1.0	D	45	Yes	IA	Nil
N-AT5	29/05/2018 22:32	2.8	-1.0	D	45	Yes	IA	Nil
N-AT5	29/05/2018 22:47	2.8	-1.0	D	45	Yes	IA	Nil
N-AT5	30/05/2018 22:03	1.9	-1.0	D	45	Yes	IA	Nil
N-AT5	30/05/2018 22:19	2.2	-1.0	D	45	Yes	IA	Nil
N-AT5	30/05/2018 22:38	1.8	3.0	F	45	Yes	IA	Nil
N-AT5	30/05/2018 22:54	1.4	3.0	F	45	Yes	IA	Nil
N-AT6	28/05/2018 22:00	1.7	-1.0	D	45	Yes	31	Nil
N-AT6	28/05/2018 22:16	0.1	3.0	F	45	Yes	40	Nil
N-AT6	28/05/2018 22:33	0.9	0.5	E	45	Yes	IA	Nil
N-AT6	28/05/2018 22:49	0.8	-1.0	D	45	Yes	IA	Nil
N-AT6	29/05/2018 22:13	2.8	-1.0	D	45	Yes	IA	Nil
N-AT6	29/05/2018 22:29	2.4	-1.0	D	45	Yes	IA	Nil
N-AT6	29/05/2018 22:44	2.8	-1.0	D	45	Yes	IA	Nil
N-AT6	29/05/2018 23:00	3.0	-1.0	D	45	Yes	IA	Nil
N-AT6	30/05/2018 22:00	2.2	-1.0	D	45	Yes	IA	Nil
N-AT6	30/05/2018 22:15	2.2	-1.0	D	45	Yes	IA	Nil
N-AT6	30/05/2018 22:31	1.6	3.0	F	45	Yes	IA	Nil
N-AT6	30/05/2018 22:47	1.9	3.0	F	45	Yes	IA	Nil

Notes:

1. Noise emission limits apply do not apply during wind speeds greater than 3m/s at 10m above ground level, or 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;
2. Estimated or measured L_{A1,1minute} attributed to MTP;
3. NA in exceedance column means atmospheric conditions outside those specified in project approval and so criterion is not applicable; and
4. Bold results in red indicate exceedance of criteria.

4.2.3 Cumulative Noise Levels

Table 4.5 compares cumulative noise levels for all mines in the area against cumulative noise level criteria detailed in the project approval.

Table 4.5: MTP CUMULATIVE NOISE LEVELS AGAINST CUMULATIVE NOISE LEVEL CRITERIA – QUARTER 2 2018

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	All Mine LAeq dB ^{2,4,5}	Exceedance dB ^{3,4}
Day								
N-AT1	28/05/2018 15:45	1.0	-1.6	C	50	Yes	Nil	Nil
N-AT1	28/05/2018 16:00	0.9	0.5	E	50	Yes	Nil	Nil
N-AT1	28/05/2018 16:15	1.0	-1.0	D	50	Yes	Nil	Nil
N-AT1	28/05/2018 16:32	1.0	-1.6	C	50	Yes	Nil	Nil
N-AT1	28/05/2018 16:49	1.0	-1.0	D	50	Yes	Nil	Nil
N-AT1	28/05/2018 17:06	0.8	-1.0	D	50	Yes	Nil	Nil
N-AT1	29/05/2018 14:09	5.1	-1.0	D	50	No	Nil	NA
N-AT1	29/05/2018 14:25	2.6	-1.8	B	50	Yes	Nil	Nil
N-AT1	29/05/2018 14:41	4.2	-1.0	D	50	No	Nil	NA
N-AT1	29/05/2018 14:58	2.5	-1.0	D	50	Yes	Nil	Nil
N-AT1	29/05/2018 15:13	1.4	-1.8	B	50	Yes	Nil	Nil
N-AT1	29/05/2018 15:29	0.9	-2.0	A	50	Yes	Nil	Nil
N-AT1	30/05/2018 12:58	7.8	-1.0	D	50	No	Nil	NA
N-AT1	30/05/2018 13:14	7.0	-1.0	D	50	No	Nil	NA
N-AT1	30/05/2018 13:30	6.3	-1.0	D	50	No	Nil	NA
N-AT1	30/05/2018 13:46	7.2	-1.0	D	50	No	Nil	NA
N-AT1	30/05/2018 14:02	9.4	0.5	E	50	No	Nil	NA
N-AT1	30/05/2018 14:19	7.0	-1.0	D	50	No	Nil	NA
N-AT2	28/05/2018 16:19	1.0	-1.0	D	50	Yes	Nil	Nil
N-AT2	28/05/2018 16:38	1.0	-1.0	D	50	Yes	Nil	Nil
N-AT2	28/05/2018 16:53	1.3	0.5	E	50	Yes	Nil	Nil
N-AT2	28/05/2018 17:10	0.8	-1.0	D	50	Yes	Nil	Nil
N-AT2	28/05/2018 17:25	0.7	-1.0	D	50	Yes	Nil	Nil
N-AT2	28/05/2018 17:40	0.7	-1.6	C	50	Yes	Nil	Nil
N-AT2	29/05/2018 14:57	2.5	-1.0	D	50	Yes	Nil	Nil
N-AT2	29/05/2018 15:12	1.3	-1.6	C	50	Yes	Nil	Nil
N-AT2	29/05/2018 15:27	0.9	-2.0	A	50	Yes	Nil	Nil
N-AT2	29/05/2018 15:45	4.1	-1.6	C	50	No	Nil	NA
N-AT2	29/05/2018 16:00	4.9	-1.0	D	50	No	Nil	NA

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	All Mine LAeq dB ^{2,4,5}	Exceedance dB ^{3,4}
N-AT2	29/05/2018 16:15	3.4	0.5	E	50	No	Nil	NA
N-AT2	30/05/2018 13:07	8.3	-1.0	D	50	No	Nil	NA
N-AT2	30/05/2018 13:23	6.3	-1.0	D	50	No	Nil	NA
N-AT2	30/05/2018 13:38	8.0	-1.0	D	50	No	Nil	NA
N-AT2	30/05/2018 13:54	8.1	-1.0	D	50	No	Nil	NA
N-AT2	30/05/2018 14:09	9.4	0.5	E	50	No	Nil	NA
N-AT2	30/05/2018 14:25	6.0	-1.6	C	50	No	Nil	NA
N-AT3	28/05/2018 14:10	1.9	-1.0	D	50	Yes	Nil	Nil
N-AT3	28/05/2018 14:25	2.5	0.5	E	50	Yes	Nil	Nil
N-AT3	28/05/2018 14:40	1.7	-1.8	B	50	Yes	Nil	Nil
N-AT3	28/05/2018 14:56	1.2	-1.8	B	50	Yes	Nil	Nil
N-AT3	28/05/2018 15:11	1.2	-1.0	D	50	Yes	Nil	Nil
N-AT3	28/05/2018 15:26	1.1	-1.6	C	50	Yes	Nil	Nil
N-AT3	29/05/2018 11:39	2.4	-1.6	C	50	Yes	Nil	Nil
N-AT3	29/05/2018 11:54	1.8	-2.0	A	50	Yes	Nil	Nil
N-AT3	29/05/2018 12:10	2.0	-2.0	A	50	Yes	Nil	Nil
N-AT3	29/05/2018 12:25	1.5	-2.0	A	50	Yes	Nil	Nil
N-AT3	29/05/2018 12:40	0.7	-2.0	A	50	Yes	Nil	Nil
N-AT3	29/05/2018 12:55	1.5	-1.6	C	50	Yes	Nil	Nil
N-AT3	30/05/2018 11:08	5.9	-1.0	D	50	No	Nil	NA
N-AT3	30/05/2018 11:24	5.5	-1.6	C	50	No	Nil	NA
N-AT3	30/05/2018 11:40	5.1	-1.6	C	50	No	Nil	NA
N-AT3	30/05/2018 11:55	4.5	-1.6	C	50	No	Nil	NA
N-AT3	30/05/2018 12:11	4.9	-1.6	C	50	No	Nil	NA
N-AT3	30/05/2018 12:28	4.5	-1.6	C	50	No	Nil	NA
N-AT4	28/05/2018 14:00	2.5	0.5	E	50	Yes	Nil	Nil
N-AT4	28/05/2018 14:19	1.7	-1.6	C	50	Yes	Nil	Nil
N-AT4	28/05/2018 14:35	1.7	-1.8	B	50	Yes	Nil	Nil
N-AT4	28/05/2018 14:53	1.2	-1.8	B	50	Yes	Nil	Nil
N-AT4	28/05/2018 15:12	1.2	-1.0	D	50	Yes	Nil	Nil
N-AT4	28/05/2018 15:29	1.1	-1.6	C	50	Yes	Nil	Nil
N-AT4	29/05/2018 13:55	4.9	-1.0	D	50	No	Nil	NA
N-AT4	29/05/2018 14:14	3.3	-1.6	C	50	No	Nil	NA
N-AT4	29/05/2018 14:31	2.6	-1.8	B	50	Yes	Nil	Nil
N-AT4	29/05/2018 14:51	3.7	-1.0	D	50	No	Nil	NA

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	All Mine LAeq dB ^{2,4,5}	Exceedance dB ^{3,4}
N-AT4	29/05/2018 15:08	1.3	-1.6	C	50	Yes	Nil	Nil
N-AT4	29/05/2018 15:30	0.9	-2.0	A	50	Yes	Nil	Nil
N-AT4	30/05/2018 13:14	7.0	-1.0	D	50	No	Nil	NA
N-AT4	30/05/2018 13:37	8.0	-1.0	D	50	No	Nil	NA
N-AT4	30/05/2018 13:52	7.2	-1.0	D	50	No	Nil	NA
N-AT4	30/05/2018 14:07	9.4	0.5	E	50	No	Nil	NA
N-AT4	30/05/2018 14:22	7.0	-1.0	D	50	No	Nil	NA
N-AT4	30/05/2018 14:37	8.7	-1.0	D	50	No	Nil	NA
N-AT5	28/05/2018 15:57	0.9	0.5	E	55	Yes	Nil	Nil
N-AT5	28/05/2018 16:15	1.0	-1.0	D	55	Yes	Nil	Nil
N-AT5	28/05/2018 16:31	1.0	-1.6	C	55	Yes	Nil	Nil
N-AT5	28/05/2018 16:49	1.0	-1.0	D	55	Yes	Nil	Nil
N-AT5	28/05/2018 17:09	0.8	-1.0	D	55	Yes	Nil	Nil
N-AT5	28/05/2018 17:29	0.7	-1.0	D	55	Yes	Nil	Nil
N-AT5	29/05/2018 16:00	4.9	-1.0	D	55	No	Nil	NA
N-AT5	29/05/2018 16:18	3.4	0.5	E	55	No	Nil	NA
N-AT5	29/05/2018 16:35	2.1	-1.0	D	55	Yes	Nil	Nil
N-AT5	29/05/2018 16:53	1.7	0.5	E	55	Yes	Nil	Nil
N-AT5	29/05/2018 17:09	2.0	0.5	E	55	Yes	Nil	Nil
N-AT5	29/05/2018 17:27	2.0	0.5	E	55	Yes	Nil	Nil
N-AT5	30/05/2018 10:50	5.9	-1.6	C	55	No	Nil	NA
N-AT5	30/05/2018 10:50	5.9	-1.6	C	55	No	Nil	NA
N-AT5	30/05/2018 11:27	5.5	-1.6	C	55	No	Nil	NA
N-AT5	30/05/2018 11:42	5.1	-1.6	C	55	No	Nil	NA
N-AT5	30/05/2018 11:57	4.5	-1.6	C	55	No	Nil	NA
N-AT5	30/05/2018 12:12	4.9	-1.6	C	55	No	Nil	NA
N-AT6	28/05/2018 13:57	2.5	0.5	E	50	Yes	Nil	Nil
N-AT6	28/05/2018 14:12	1.7	-1.6	C	50	Yes	Nil	Nil
N-AT6	28/05/2018 14:28	1.2	-1.8	B	50	Yes	Nil	Nil
N-AT6	28/05/2018 14:43	1.6	-1.6	C	50	Yes	Nil	Nil
N-AT6	28/05/2018 14:59	1.2	-1.8	B	50	Yes	Nil	Nil
N-AT6	28/05/2018 15:16	1.5	-1.0	D	50	Yes	Nil	Nil
N-AT6	29/05/2018 12:18	1.3	-2.0	A	50	Yes	Nil	Nil
N-AT6	29/05/2018 12:34	0.7	-2.0	A	50	Yes	Nil	Nil
N-AT6	29/05/2018 12:50	1.1	-2.0	A	50	Yes	Nil	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	All Mine LAeq dB ^{2,4,5}	Exceedance dB ^{3,4}
N-AT6	29/05/2018 13:07	1.5	-2.0	A	50	Yes	Nil	Nil
N-AT6	29/05/2018 13:24	1.8	-1.8	B	50	Yes	Nil	Nil
N-AT6	29/05/2018 13:39	0.7	-2.0	A	50	Yes	Nil	Nil
N-AT6	30/05/2018 11:07	5.9	-1.0	D	50	No	Nil	NA
N-AT6	30/05/2018 11:23	5.5	-1.6	C	50	No	Nil	NA
N-AT6	30/05/2018 11:39	5.1	-1.6	C	50	No	Nil	NA
N-AT6	30/05/2018 11:55	4.5	-1.6	C	50	No	Nil	NA
N-AT6	30/05/2018 12:11	4.9	-1.6	C	50	No	Nil	NA
N-AT6	30/05/2018 12:27	4.5	-1.6	C	50	No	Nil	NA
Evening								
N-AT1	28/05/2018 20:22	2.3	-1.0	D	45	Yes	Nil	Nil
N-AT1	28/05/2018 20:38	1.7	-1.0	D	45	Yes	Nil	Nil
N-AT1	29/05/2018 20:15	2.1	-1.0	D	45	Yes	Nil	Nil
N-AT1	29/05/2018 20:31	2.6	0.5	E	45	Yes	Nil	Nil
N-AT1	30/05/2018 20:14	2.3	0.5	E	45	Yes	Nil	Nil
N-AT1	30/05/2018 20:31	3.6	-1.0	D	45	No	Nil	NA
N-AT2	28/05/2018 18:00	0.4	3.0	F	45	Yes	Nil	Nil
N-AT2	28/05/2018 18:15	0.9	-1.0	D	45	Yes	Nil	Nil
N-AT2	29/05/2018 21:23	2.3	0.5	E	45	Yes	Nil	Nil
N-AT2	29/05/2018 21:41	2.6	-1.0	D	45	Yes	Nil	Nil
N-AT2	30/05/2018 21:22	2.9	-1.0	D	45	Yes	Nil	Nil
N-AT2	30/05/2018 21:37	2.1	0.5	E	45	Yes	Nil	Nil
N-AT3	28/05/2018 21:20	2.4	3.0	F	45	No	Nil	NA
N-AT3	28/05/2018 21:35	2.6	3.0	F	45	No	Nil	NA
N-AT3	29/05/2018 20:20	2.1	-1.0	D	45	Yes	Nil	Nil
N-AT3	29/05/2018 20:36	2.7	-1.0	D	45	Yes	Nil	Nil
N-AT3	30/05/2018 20:34	3.9	-1.0	D	45	No	Nil	NA
N-AT3	30/05/2018 20:49	3.7	-1.0	D	45	No	Nil	NA
N-AT4	28/05/2018 21:16	2.4	3.0	F	45	No	Nil	NA
N-AT4	28/05/2018 21:33	2.6	3.0	F	45	No	Nil	NA
N-AT4	29/05/2018 20:21	2.1	-1.0	D	45	Yes	Nil	Nil
N-AT4	29/05/2018 20:39	2.7	-1.0	D	45	Yes	Nil	Nil
N-AT4	30/05/2018 20:31	3.6	-1.0	D	45	No	Nil	NA
N-AT4	30/05/2018 20:51	3.7	-1.0	D	45	No	Nil	NA
N-AT5	28/05/2018 18:02	0.6	0.5	E	45	Yes	Nil	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	All Mine LAeq dB ^{2,4,5}	Exceedance dB ^{3,4}
N-AT5	28/05/2018 18:19	0.9	-1.0	D	45	Yes	Nil	Nil
N-AT5	29/05/2018 21:10	2.3	-1.0	D	45	Yes	Nil	Nil
N-AT5	30/05/2018 21:21	2.9	-1.0	D	45	Yes	Nil	Nil
N-AT5	30/05/2018 21:38	2.1	0.5	E	45	Yes	Nil	Nil
N-AT6	28/05/2018 21:12	2.4	3.0	F	45	No	Nil	NA
N-AT6	28/05/2018 21:29	2.8	3.0	F	45	No	Nil	NA
N-AT6	29/05/2018 20:59	2.6	-1.0	D	45	Yes	Nil	Nil
N-AT6	29/05/2018 21:15	2.4	-1.0	D	45	Yes	Nil	Nil
N-AT6	30/05/2018 21:05	3.3	-1.0	D	45	No	Nil	NA
N-AT6	30/05/2018 21:21	2.9	-1.0	D	45	Yes	Nil	Nil
Night								
N-AT1	28/05/2018 23:18	1.5	3	F	40	Yes	Nil	Nil
N-AT1	28/05/2018 23:35	1.5	0.5	E	40	Yes	Nil	Nil
N-AT1	28/05/2018 23:50	1.7	-1	D	40	Yes	Nil	Nil
N-AT1	29/05/2018 00:06	0.6	0.5	E	40	Yes	Nil	Nil
N-AT1	29/05/2018 23:30	2.7	-1	D	40	Yes	Nil	Nil
N-AT1	29/05/2018 23:46	3.6	-1	D	40	No	Nil	NA
N-AT1	30/05/2018 00:02	3.2	-1	D	40	No	Nil	NA
N-AT1	30/05/2018 00:18	3.6	-1	D	40	No	Nil	NA
N-AT1	30/05/2018 23:18	2.6	-1	D	40	Yes	Nil	Nil
N-AT1	30/05/2018 23:34	2.3	-1	D	40	Yes	Nil	Nil
N-AT1	30/05/2018 23:50	2.5	-1	D	40	Yes	Nil	Nil
N-AT1	31/05/2018 00:06	2.4	-1	D	40	Yes	Nil	Nil
N-AT2	28/05/2018 23:20	1.5	3.0	F	40	Yes	Nil	Nil
N-AT2	28/05/2018 23:36	1.5	0.5	E	40	Yes	Nil	Nil
N-AT2	28/05/2018 23:51	1.7	-1.0	D	40	Yes	Nil	Nil
N-AT2	29/05/2018 00:06	0.6	0.5	E	40	Yes	Nil	Nil
N-AT2	29/05/2018 22:00	2.8	-1.0	D	40	Yes	Nil	Nil
N-AT2	29/05/2018 22:15	2.8	-1.0	D	40	Yes	Nil	Nil
N-AT2	29/05/2018 22:30	2.4	-1.0	D	40	Yes	Nil	Nil
N-AT2	29/05/2018 22:45	2.8	-1.0	D	40	Yes	Nil	Nil
N-AT2	30/05/2018 22:00	2.2	-1.0	D	40	Yes	Nil	Nil
N-AT2	30/05/2018 22:15	2.2	-1.0	D	40	Yes	Nil	Nil
N-AT2	30/05/2018 22:30	1.6	3.0	F	40	Yes	Nil	Nil
N-AT2	30/05/2018 22:45	1.9	3.0	F	40	Yes	Nil	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	All Mine LAeq dB ^{2,4,5}	Exceedance dB ^{3,4}
N-AT3	28/05/2018 22:00	1.7	-1.0	D	40	Yes	Nil	Nil
N-AT3	28/05/2018 22:15	0.1	3.0	F	40	Yes	Nil	Nil
N-AT3	28/05/2018 22:30	0.4	3.0	F	40	Yes	Nil	Nil
N-AT3	28/05/2018 22:45	0.8	-1.0	D	40	Yes	Nil	Nil
N-AT3	29/05/2018 23:18	2.5	-1.0	D	40	Yes	Nil	Nil
N-AT3	29/05/2018 23:34	4.3	-1.0	D	40	No	Nil	NA
N-AT3	29/05/2018 23:49	3.6	-1.0	D	40	No	Nil	NA
N-AT3	30/05/2018 00:04	2.9	-1.0	D	40	Yes	Nil	Nil
N-AT3	30/05/2018 23:17	2.6	-1.0	D	40	Yes	Nil	Nil
N-AT3	30/05/2018 23:32	2.6	-1.0	D	40	Yes	Nil	Nil
N-AT3	30/05/2018 23:47	2.5	-1.0	D	40	Yes	Nil	Nil
N-AT3	31/05/2018 00:02	1.9	0.5	E	40	Yes	Nil	Nil
N-AT4	28/05/2018 22:01	1.7	-1.0	D	40	Yes	Nil	Nil
N-AT4	28/05/2018 22:20	0.1	3.0	F	40	Yes	Nil	Nil
N-AT4	28/05/2018 22:37	0.9	0.5	E	40	Yes	Nil	Nil
N-AT4	28/05/2018 22:53	1.2	0.5	E	40	Yes	Nil	Nil
N-AT4	29/05/2018 23:12	3.2	-1.0	D	40	No	Nil	NA
N-AT4	29/05/2018 23:27	2.7	-1.0	D	40	Yes	Nil	Nil
N-AT4	29/05/2018 23:43	3.6	-1.0	D	40	No	Nil	NA
N-AT4	29/05/2018 23:59	3.2	-1.0	D	40	No	Nil	NA
N-AT4	30/05/2018 23:18	2.6	-1.0	D	40	Yes	Nil	Nil
N-AT4	30/05/2018 23:34	2.3	-1.0	D	40	Yes	Nil	Nil
N-AT4	30/05/2018 23:49	2.5	-1.0	D	40	Yes	Nil	Nil
N-AT4	31/05/2018 00:04	2.4	-1.0	D	40	Yes	Nil	Nil
N-AT5	28/05/2018 23:21	1.5	3.0	F	40	Yes	Nil	Nil
N-AT5	28/05/2018 23:36	1.5	0.5	E	40	Yes	Nil	Nil
N-AT5	28/05/2018 23:56	1.5	-1.0	D	40	Yes	Nil	Nil
N-AT5	29/05/2018 00:42	0.8	-1.0	D	40	Yes	Nil	Nil
N-AT5	29/05/2018 22:01	2.8	-1.0	D	40	Yes	Nil	Nil
N-AT5	29/05/2018 22:16	2.8	-1.0	D	40	Yes	Nil	Nil
N-AT5	29/05/2018 22:32	2.8	-1.0	D	40	Yes	Nil	Nil
N-AT5	29/05/2018 22:47	2.8	-1.0	D	40	Yes	Nil	Nil
N-AT5	30/05/2018 22:03	1.9	-1.0	D	40	Yes	Nil	Nil
N-AT5	30/05/2018 22:19	2.2	-1.0	D	40	Yes	Nil	Nil
N-AT5	30/05/2018 22:38	1.8	3.0	F	40	Yes	Nil	Nil

Location	Start Date and Time	Wind Speed m/s	VTG °C/100m	Stability Class	Criterion dB	Criterion Applies ¹	All Mine LAeq dB ^{2,4,5}	Exceedance dB ^{3,4}
N-AT5	30/05/2018 22:54	1.4	3.0	F	40	Yes	Nil	Nil
N-AT6	28/05/2018 22:00	1.7	-1.0	D	40	Yes	Nil	Nil
N-AT6	28/05/2018 22:16	0.1	3.0	F	40	Yes	Nil	Nil
N-AT6	28/05/2018 22:33	0.9	0.5	E	40	Yes	Nil	Nil
N-AT6	28/05/2018 22:49	0.8	-1.0	D	40	Yes	Nil	Nil
N-AT6	29/05/2018 22:13	2.8	-1.0	D	40	Yes	Nil	Nil
N-AT6	29/05/2018 22:29	2.4	-1.0	D	40	Yes	Nil	Nil
N-AT6	29/05/2018 22:44	2.8	-1.0	D	40	Yes	Nil	Nil
N-AT6	29/05/2018 23:00	3.0	-1.0	D	40	Yes	Nil	Nil
N-AT6	30/05/2018 22:00	2.2	-1.0	D	40	Yes	Nil	Nil
N-AT6	30/05/2018 22:15	2.2	-1.0	D	40	Yes	Nil	Nil
N-AT6	30/05/2018 22:31	1.6	3.0	F	40	Yes	Nil	Nil
N-AT6	30/05/2018 22:47	1.9	3.0	F	40	Yes	Nil	Nil

Notes:

1. Noise emission limits apply do not apply during wind speeds greater than 3m/s at 10m above ground level, or 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;
2. Estimated or measured $L_{Aeq,15\text{minute}}$ attributed to cumulative mine noise;
3. NA in exceedance column means atmospheric conditions outside those specified in project approval and so criterion is not applicable;
4. Bold results in red indicate exceedance of criteria; and
5. By definition, cumulative noise refers to noise from MTP in conjunction with noise from one or more other mines. If MTP is inaudible or the only noise source, the measured cumulative noise is defined as 'nil'.

4.3 Low Frequency Noise Assessment

Measured MTP only levels were assessed for the applicability of low frequency modifying factors in accordance with the EPA's NPfL.

None of the measurements satisfied the conditions outlined in Section 3.3. Therefore no further assessment was undertaken.

4.4 Atmospheric Conditions

Atmospheric condition data measured by the operator at each location using a Kestrel hand-held weather meter is shown in Table 4.6. Atmospheric condition data is routinely recorded during each measurement to show conditions near the microphone during the monitoring period. The wind speed, direction and temperature were measured at 1.8 metres.

Table 4.6: MEASURED ATMOSPHERIC CONDITIONS – QUARTER 2 2018

Location	Start Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	Cloud Cover 1/8s
Day					
N-AT1	28/05/2018 15:45	22	0.0	0	7
N-AT1	28/05/2018 16:00	20	0.0	0	8
N-AT1	28/05/2018 16:15	20	0.0	0	8
N-AT1	28/05/2018 16:32	20	0.0	0	8
N-AT1	28/05/2018 16:49	18	0.0	0	8
N-AT1	28/05/2018 17:06	18	0.0	0	9
N-AT1	29/05/2018 14:09	24	1.8	290	3
N-AT1	29/05/2018 14:25	23	1.6	290	3
N-AT1	29/05/2018 14:41	26	0.9	260	3
N-AT1	29/05/2018 14:58	26	0.9	260	3
N-AT1	29/05/2018 15:13	23	1.6	260	3
N-AT1	29/05/2018 15:29	22	0.9	300	4
N-AT1	30/05/2018 12:58	18	2.8	215	2
N-AT1	30/05/2018 13:14	18	2.9	220	3
N-AT1	30/05/2018 13:30	17	2.6	240	1
N-AT1	30/05/2018 13:46	17	3.5	270	2
N-AT1	30/05/2018 14:02	17	3.3	280	2
N-AT1	30/05/2018 14:19	16	3.3	280	1
N-AT2	28/05/2018 16:19	20	0.0	0	7
N-AT2	28/05/2018 16:38	20	0.0	0	7
N-AT2	28/05/2018 16:53	20	0.0	0	7
N-AT2	28/05/2018 17:10	17	0.8	70	7
N-AT2	28/05/2018 17:25	7	0.0	0	7
N-AT2	28/05/2018 17:40	16	0.0	0	7
N-AT2	29/05/2018 14:57	25	0.0	0	4
N-AT2	29/05/2018 15:12	25	0.9	280	3
N-AT2	29/05/2018 15:27	24	1.5	270	3

Location	Start Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	Cloud Cover 1/8s
N-AT2	29/05/2018 15:45	23	0.7	260	2
N-AT2	29/05/2018 16:00	2	0.7	280	2
N-AT2	29/05/2018 16:15	22	0.4	290	1
N-AT2	30/05/2018 13:07	17	2.5	270	3
N-AT2	30/05/2018 13:23	18	3.0	265	2
N-AT2	30/05/2018 13:38	17	3.0	265	2
N-AT2	30/05/2018 13:54	17	3.0	270	2
N-AT2	30/05/2018 14:09	16	2.7	260	1
N-AT2	30/05/2018 14:25	16	1.7	280	1
N-AT3	28/05/2018 14:10	20	0.3	110	7
N-AT3	28/05/2018 14:25	20	0.2	200	7
N-AT3	28/05/2018 14:40	20	0.0	0	7
N-AT3	28/05/2018 14:56	20	0.4	160	8
N-AT3	28/05/2018 15:11	19	0.3	200	8
N-AT3	28/05/2018 15:26	20	0.0	0	7
N-AT3	29/05/2018 11:39	22	0.6	10	1
N-AT3	29/05/2018 11:54	23	1.2	340	1
N-AT3	29/05/2018 12:10	24	0.7	330	2
N-AT3	29/05/2018 12:25	23	0.9	330	2
N-AT3	29/05/2018 12:40	23	0.9	280	3
N-AT3	29/05/2018 12:55	22	0.5	240	2
N-AT3	30/05/2018 11:08	17	3.3	250	2
N-AT3	30/05/2018 11:24	17	3.5	250	2
N-AT3	30/05/2018 11:40	18	2.9	260	3
N-AT3	30/05/2018 11:55	17	2.1	260	0
N-AT3	30/05/2018 12:11	18	2.7	250	3
N-AT3	30/05/2018 12:28	18	3.0	270	3
N-AT4	28/05/2018 14:00	24	0.0	0	8
N-AT4	28/05/2018 14:19	31	0.0	0	8
N-AT4	28/05/2018 14:35	28	0.0	0	7
N-AT4	28/05/2018 14:53	22	0.6	10	7
N-AT4	28/05/2018 15:12	22	0.0	0	8
N-AT4	28/05/2018 15:29	22	0.0	0	8
N-AT4	29/05/2018 13:55	24	2.2	260	3
N-AT4	29/05/2018 14:14	25	2.1	210	4

Location	Start Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	Cloud Cover 1/8s
N-AT4	29/05/2018 14:31	24	2.2	210	4
N-AT4	29/05/2018 14:51	24	2.2	210	3
N-AT4	29/05/2018 15:08	21	0.0	0	4
N-AT4	29/05/2018 15:30	21	0.0	0	4
N-AT4	30/05/2018 13:14	18	3.2	3260	3
N-AT4	30/05/2018 13:37	18	3.5	280	1
N-AT4	30/05/2018 13:52	19	3.6	250	1
N-AT4	30/05/2018 14:07	19	3.9	240	1
N-AT4	30/05/2018 14:22	17	4.6	220	1
N-AT4	30/05/2018 14:37	17	5.7	220	1
N-AT5	28/05/2018 15:57	20	0.0	0	7
N-AT5	28/05/2018 16:15	21	0.0	0	7
N-AT5	28/05/2018 16:31	21	0.0	0	7
N-AT5	28/05/2018 16:49	16	0.0	0	8
N-AT5	28/05/2018 17:09	14	0.0	0	7
N-AT5	28/05/2018 17:29	14	0.0	0	7
N-AT5	29/05/2018 16:00	27	0.0	0	2
N-AT5	29/05/2018 16:18	19	0.0	0	2
N-AT5	29/05/2018 16:35	19	0.0	0	2
N-AT5	29/05/2018 16:53	19	0.0	0	2
N-AT5	29/05/2018 17:09	13	0.0	0	2
N-AT5	29/05/2018 17:27	13	0.0	0	2
N-AT5	30/05/2018 10:50	19	2.2	270	1
N-AT5	30/05/2018 10:50	17	2.0	270	1
N-AT5	30/05/2018 11:27	20	2.4	280	1
N-AT5	30/05/2018 11:42	20	2.3	270	1
N-AT5	30/05/2018 11:57	18	2.1	290	1
N-AT5	30/05/2018 12:12	17	2.0	290	3
N-AT6	28/05/2018 13:57	21	0.0	0	7
N-AT6	28/05/2018 14:12	25	0.0	0	7
N-AT6	28/05/2018 14:28	24	0.0	0	7
N-AT6	28/05/2018 14:43	24	0.0	0	0
N-AT6	28/05/2018 14:59	23	0.0	0	7
N-AT6	28/05/2018 15:16	22	0.0	0	7
N-AT6	29/05/2018 12:18	23	0.0	0	1

Location	Start Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	Cloud Cover 1/8s
N-AT6	29/05/2018 12:34	23	0.6	120	0
N-AT6	29/05/2018 12:50	22	0.9	120	1
N-AT6	29/05/2018 13:07	23	0.7	120	2
N-AT6	29/05/2018 13:24	25	0.6	90	3
N-AT6	29/05/2018 13:39	26	0.9	140	4
N-AT6	30/05/2018 11:07	17	3.5	240	2
N-AT6	30/05/2018 11:23	17	3.8	240	2
N-AT6	30/05/2018 11:39	16	2.4	240	3
N-AT6	30/05/2018 11:55	17	2.4	240	2
N-AT6	30/05/2018 12:11	17	2.2	240	3
N-AT6	30/05/2018 12:27	19	3.2	240	3
Evening					
N-AT1	28/05/2018 20:22	17	0.0	0	6
N-AT1	28/05/2018 20:38	17	0.0	0	6
N-AT1	29/05/2018 20:15	18	0.4	260	3
N-AT1	29/05/2018 20:31	18	0.8	300	2
N-AT1	30/05/2018 20:14	9	2.4	260	0
N-AT1	30/05/2018 20:31	9	2.2	260	1
N-AT2	28/05/2018 18:00	16	0.0	0	8
N-AT2	28/05/2018 18:15	15	0.5	180	7
N-AT2	29/05/2018 21:23	14	0.4	280	1
N-AT2	29/05/2018 21:41	14	0.7	280	2
N-AT2	30/05/2018 21:22	11	1.6	160	1
N-AT2	30/05/2018 21:37	11	1.8	160	1
N-AT3	28/05/2018 21:20	14	0.8	350	7
N-AT3	28/05/2018 21:35	13	0.0	0	7
N-AT3	29/05/2018 20:20	15	2.0	340	1
N-AT3	29/05/2018 20:36	15	1.8	340	1
N-AT3	30/05/2018 20:34	11	2.3	220	1
N-AT3	30/05/2018 20:49	10	2.4	240	1
N-AT4	28/05/2018 21:16	11	0.0	0	6
N-AT4	28/05/2018 21:33	8	0.0	0	5
N-AT4	29/05/2018 20:21	12	0.6	50	0
N-AT4	29/05/2018 20:39	13	0.0	0	0
N-AT4	30/05/2018 20:31	10	3.0	250	1

Location	Start Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	Cloud Cover 1/8s
N-AT4	30/05/2018 20:51	10	3.0	250	1
N-AT5	28/05/2018 18:02	12	0.0	0	7
N-AT5	28/05/2018 18:19	12	0.0	0	8
N-AT5	29/05/2018 21:10	13	0.0	0	1
N-AT5	30/05/2018 21:21	10	2.0	290	0
N-AT5	30/05/2018 21:38	10	2.0	290	0
N-AT6	28/05/2018 21:12	17	0.0	0	6
N-AT6	28/05/2018 21:29	10	0.0	0	2
N-AT6	29/05/2018 20:59	12	0.0	0	0
N-AT6	29/05/2018 21:15	12	0.0	0	0
N-AT6	30/05/2018 21:05	11	2.2	270	0
N-AT6	30/05/2018 21:21	11	2.7	260	0
Night					
N-AT1	30/05/2018 23:18	8	2.5	260	0
N-AT1	30/05/2018 23:34	8	2.3	260	0
N-AT1	30/05/2018 23:50	8	2.4	260	0
N-AT1	31/05/2018 00:06	9	2.4	260	0
N-AT2	28/05/2018 23:20	10	0.0	0	0
N-AT2	28/05/2018 23:36	9	0.0	0	0
N-AT2	28/05/2018 23:51	9	0.0	0	0
N-AT2	29/05/2018 00:06	8	0.0	0	0
N-AT2	29/05/2018 22:00	14	0.6	260	3
N-AT2	29/05/2018 22:15	16	1.5	270	7
N-AT2	29/05/2018 22:30	16	1.9	270	8
N-AT2	29/05/2018 22:45	16	1.1	270	8
N-AT2	30/05/2018 22:00	10	0.5	170	1
N-AT2	30/05/2018 22:15	10	0.8	180	1
N-AT2	30/05/2018 22:30	10	1.0	180	1
N-AT2	30/05/2018 22:45	10	0.5	180	1
N-AT3	28/05/2018 22:00	12	0.6	340	6
N-AT3	28/05/2018 22:15	10	0.7	350	4
N-AT3	28/05/2018 22:30	11	0.0	0	2
N-AT3	28/05/2018 22:45	11	0.3	180	2
N-AT3	29/05/2018 23:18	16	2.1	330	8
N-AT3	29/05/2018 23:34	19	4.1	230	8

Location	Start Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	Cloud Cover 1/8s
N-AT3	29/05/2018 23:49	18	4.2	240	8
N-AT3	30/05/2018 00:04	17	4.1	240	8
N-AT3	30/05/2018 23:17	10	0.9	340	1
N-AT3	30/05/2018 23:32	7	0.7	350	1
N-AT3	30/05/2018 23:47	8	1.6	350	1
N-AT3	31/05/2018 00:02	7	1.1	350	1
N-AT4	28/05/2018 22:01	8	0.0	0	4
N-AT4	28/05/2018 22:20	8	0.0	0	3
N-AT4	28/05/2018 22:37	8	0.0	0	2
N-AT4	28/05/2018 22:53	7	0.0	0	1
N-AT4	29/05/2018 23:12	14	1.1	0	8
N-AT4	29/05/2018 23:27	14	1.2	215	8
N-AT4	29/05/2018 23:43	16	3.9	260	8
N-AT4	29/05/2018 23:59	16	2.7	130	8
N-AT4	30/05/2018 23:18	6	0.5	0	0
N-AT4	30/05/2018 23:34	6	1.1	0	0
N-AT4	30/05/2018 23:49	4	1.0	0	0
N-AT4	31/05/2018 00:04	4	1.2	0	0
N-AT5	28/05/2018 23:21	6	0.0	0	1
N-AT5	28/05/2018 23:36	6	0.0	0	1
N-AT5	28/05/2018 23:56	4	0.0	0	0
N-AT5	29/05/2018 00:42	4	0.0	0	0
N-AT5	29/05/2018 22:01	12	0.0	0	2
N-AT5	29/05/2018 22:16	13	0.0	0	5
N-AT5	29/05/2018 22:32	12	0.0	0	7
N-AT5	29/05/2018 22:47	12	0.0	0	8
N-AT5	30/05/2018 22:03	9	1.6	295	0
N-AT5	30/05/2018 22:19	9	1.9	290	0
N-AT5	30/05/2018 22:38	9	0.0	0	0
N-AT5	30/05/2018 22:54	8	1.1	290	0
N-AT6	28/05/2018 22:00	10	0.0	0	1
N-AT6	28/05/2018 22:16	10	0.0	0	0
N-AT6	28/05/2018 22:33	9	0.0	0	0
N-AT6	28/05/2018 22:49	9	0.0	0	0
N-AT6	29/05/2018 22:13	13	0.0	0	5

Location	Start Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	Cloud Cover 1/8s
N-AT6	29/05/2018 22:29	12	0.0	0	6
N-AT6	29/05/2018 22:44	15	0.0	0	8
N-AT6	29/05/2018 23:00	15	0.0	0	8
N-AT6	30/05/2018 22:00	10	3.6	260	0
N-AT6	30/05/2018 22:15	11	4.5	260	0
N-AT6	30/05/2018 22:31	11	3.4	260	0
N-AT6	30/05/2018 22:47	11	3.8	260	0
N-AT6	29/05/2018 22:13	19	0.0	-	0
N-AT6	29/05/2018 22:29	21	0.0	-	0
N-AT6	29/05/2018 22:44	20	0.3	100	0
N-AT6	29/05/2018 23:00	19	0.0	-	0
N-AT6	30/05/2018 22:00	21	0.0	-	0
N-AT6	30/05/2018 22:15	22	0.0	-	0
N-AT6	30/05/2018 22:31	21	0.0	-	0
N-AT6	30/05/2018 22:47	21	1.3	290	0

Notes:

1. Temperature, wind speed and direction measured at 1.8 metres; and
2. "-" indicates calm conditions at monitoring location.

MTP weather station data is used to determine compliance with specified noise criteria and is provided in Appendix C.

5 SUMMARY OF COMPLIANCE

Noise monitoring as described in this report was undertaken during the day, evening and night periods of 28 to 31 May 2018 at six monitoring locations, in accordance with the MTP EPL.

The survey purpose is to quantify and describe the existing acoustic environment around the mine project and compare results with relevant limits.

5.1 Noise Assessment

Noise levels from MTP complied with all criteria at each monitoring location during the Quarter 2 2018 monitoring period.

5.2 Low Frequency Noise Assessment

A low frequency noise assessment was carried out in accordance with the EPA's NPfl. Low frequency modifying factors, where applicable, did not result in any exceedances of MTP noise limits during the Quarter 2 2018 monitoring period.

Global Acoustics Pty Ltd

APPENDIX

A *PROJECT APPROVAL, NOISE MANAGEMENT PLAN & EPL*

A.1 MOUNT PLEASANT PROJECT APPROVAL (DA 92/97)

SCHEDULE 3 ENVIRONMENTAL PERFORMANCE CONDITIONS

ACQUISITION UPON REQUEST

- Upon receiving a written request for acquisition from the owner of the land listed in Table 1, the Applicant **must** acquire the land in accordance with the procedures in conditions 6-7 of Schedule 4.

Table 1: Land subject to acquisition upon request

Receiver	Receiver
43, 44 – J.B. Moore	143, 161, 237 – J.S. & N.M. Lonergan
45 – B.A. & T.E. Strachan	147 – M.J. & R.G. Adnum
47 – B.L. & M.L. Bales	156 – J.E. & J.L. Lonergan
67 – J.M. Simpson	158 – J.M. Hoath
96 – R.P. Grey	159, 236 – J.E. & M.S. Ducey
101 – C. Austin	129 – R.M. & S.D. Farrell
102 – A. Mather	130 – M.J. Farrell
107 – B.L. Wilton	135, 309 – K.J. & G.M. Yore
108 – J.S. Gibson	146 – C.R. & N.J. Hoath
112 – B.D. Barry	153 – G.M. Casey
118 – J. & C. Hayes	157 – R.B. Parkinson & S.A. Peberdy
120, 308 – D.L. & P.A. Moore	229 – C. Horne
121 – C & J.M. Moore	263 – R.R. & J.M. Hamilton
137, 138 A – D.H. MacIntyre	C – P.M. Yore
D – S. Yore	

Notes:

- To identify the locations referred to in Table 1, see the figures in Appendix 5; and
- All land is noise affected, except receiver 67 which is air quality affected.

ADDITIONAL NOISE AND DUST MITIGATION UPON REQUEST

- Upon receiving a written request from the owner of any residence on the land listed in Table 1 or Table 2, the Applicant **must** implement additional noise and/or dust mitigation measures (such as double-glazing, insulation, air filters, first flush roof water drainage system and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible and related to the noise and/or dust impacts on the residence.

If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the **Secretary** for resolution.

Table 2: Land where additional noise mitigation measures are available on request

Receiver	Receiver
68 – Googe	203 – Millard
74 – Sormaz	205 – Dapkos Pty Ltd
77 – Purser	231 – Wicks
78, 80 – W.J. Adnum	240 – MacIntyre
79 – W.J. & D.W. Adnum	242 – Raphael
86, 290 – Cowtime Investments Pty Ltd	257 – Lane
139 – Upton	258 – Ellis
140 – Dapkos Pty Limited	259 – Peel
154 – Standing	279 – Parkinson

Note: To identify the locations referred to in Table 2, see the figures in Appendix 5.

NOISE

Noise Criteria

3. Except for the noise-affected land referred to in Table 1, the Applicant **must** ensure that the noise generated by the development does not exceed the criteria in Table 3 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 3: Noise criteria dB(A)

Location		Day	Evening	Night	
		LAeq(15min)	LAeq(15min)	LAeq(15min)	LA1(1min)
NAG 1	260, 261	37	37	37	45
	258	40	40	40	45
	259	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 2	272	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 3	139, 154, 240	40	40	40	45
	241	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 4	169	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 5	All privately-owned land	41	40	39	45
NAG 6	205	41	41	41	45
	203, 242	40	40	40	45
	202	39	39	39	45
	204	38	38	38	45
	All other privately-owned land	37	37	37	45
NAG 7	68, 74, 279	43	42	42	45
	86, 290	42	42	42	45
	77	42	41	41	45
	79, 80, 231	41	41	41	45
	78	41	40	40	45
	All other privately-owned land	40	37	37	45
NAG 8	35	42	41	41	45
	289	41	40	40	45
	23, 84	40	40	40	45
	All other privately-owned land	41	39	39	45
NAG 9	All privately-owned land	39	38	37	45
NAG 10	All privately-owned land	35	35	35	45
NAG 11	All privately-owned land	37	36	35	45
All other privately-owned land		35	35	35	45

Notes:

- To identify the locations referred to in Table 3, see the figures in Appendices 5 and 6.
- Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.

However, these criteria do not apply if the Applicant has a written agreement with the relevant landowner to exceed the criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Noise Acquisition Criteria

4. If the noise generated by the development exceeds the criteria in Table 4 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, the Applicant **must** acquire the land in accordance with the procedures in conditions 6-7 of [Schedule 4](#).

Table 4: Noise acquisition criteria dB(A)

Location	Day	Evening	Night
	L _{Aeq} (15min)	L _{Aeq} (15min)	L _{Aeq} (15min)
All privately-owned land in NAG 1, NAG 2, NAG 3, NAG 4, and NAG 10	40	40	40
All privately-owned land in NAG 5	46	45	44
All privately-owned land in NAG 6	42	42	42
All privately-owned land in NAG 7	45	42	42
All privately-owned land in NAG 8	46	44	44
All privately-owned land in NAG 9	44	43	42
All privately-owned land in NAG 11	42	41	40
All other privately-owned land	40	40	40

Notes:

- To identify the locations referred to in Table 4, see the figures in Appendices 5 and 6;
- Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and
- For this condition to apply, the exceedances of the criteria must be systematic.

Cumulative Noise Criteria

5. Except for the noise-affected land referred to in Table 1, the Applicant **must** implement all reasonable and feasible measures to ensure that the noise generated by the development combined with the noise generated by other mines in the area does not exceed the criteria in Table 5 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 5: Cumulative noise criteria dB(A) L_{Aeq}(period)

Location	Day	Evening	Night
NAG 8, 9	55	45	40
All other privately-owned land	50	45	40

Notes:

- To identify the locations referred to in Table 5, see the figures in Appendices 5 and 6; and
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

Cumulative Noise Acquisition Criteria

6. If the noise generated by the development combined with the noise generated by other mines in the area exceeds the criteria in Table 6 at any residence on privately-owned land or on more than 25 percent of privately-owned land, then upon receiving a written request for acquisition from the landowner, the Applicant **must** acquire the land on as equitable basis as possible with the relevant mines in accordance with the procedures in conditions 6-7 of [Schedule 4](#).

Table 6: Cumulative noise acquisition criteria dB(A) L_{Aeq}(period)

Location	Day	Evening	Night
NAG 8, 9	60	50	45
All other privately-owned land	55	50	45

Notes:

- To identify the locations referred to in Table 6, see the figures in Appendices 5 and 6;
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and
- For this condition to apply, the exceedances of the criteria must be systematic.

Rail Noise

7. The Applicant **must** ensure that its rail spur is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in RailCorp's EPL (No. 12208) and ARTC's EPL (No. 3142).

Noise Operating Conditions

8. The Applicant must:
- (a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the construction, operational, low frequency, and rail noise generated by the development;
 - (b) minimise the noise impacts of the development during temperature inversions;
 - (c) regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this consent; and
 - (d) co-ordinate the noise management on site with the noise management at nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines, to the satisfaction of the Secretary.

Note: Monitoring under this consent is not required at all residences and the use of representative monitoring locations can be used to demonstrate compliance with criteria, if agreed to by the Secretary.

Noise Management Plan

9. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:
- (a) be submitted to the Secretary for approval prior to carrying out any development on site;
 - (b) describe the noise mitigation measures that would be implemented to ensure compliance with the relevant conditions of this consent, including a real-time noise management system that employs both reactive and proactive mitigation measures;
 - (c) include a noise monitoring program that:
 - uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the development;
 - includes a protocol for determining exceedances of the relevant conditions of this consent; and
 - (d) include a protocol that has been prepared in consultation with the owners of the nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

A.2 MOUNT PLEASANT NOISE MANAGEMENT PLAN

The most recent version of the Noise Management Plan was approved by the Department of Planning in October 2017. Relevant sections are reproduced below.

1 INTRODUCTION

The Mount Pleasant Operation (MPO) area is located in the Upper Hunter Valley of New South Wales (NSW), north-west of Muswellbrook and approximately 50 kilometres (km) north-west of Singleton (Figure 1). The villages of Aberdeen and Kayuga are located approximately 5 km north-northeast and 1 km north of the MPO boundary, respectively.

The development application for the MPO was made in 1997. This was supported by an Environmental Impact Statement (EIS) prepared by Environmental Resources Management (ERM) Mitchell McCotter (ERM Mitchell McCotter, 1997). On 22 December 1999, the then Minister for Urban Affairs and Planning granted Development Consent DA 92/97 to Coal & Allied Operations Pty Ltd. This allowed for the "Construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities" at Mount Pleasant. The consent allowed for the extraction of 197 million tonnes of run of mine (ROM) coal over a 21 year period, at a rate of up to 10.5 million tonnes of ROM coal per year.

The MPO Modification (MOD 1) was submitted for approval on 19 May 2010 with a supporting Environmental Assessment (EA) prepared by EMGA Mitchell McLennan (EMGA Mitchell McLennan, 2010), with the following changes proposed:

- The provision of an infrastructure envelope for siting the mine infrastructure.
- The provision of an optional conveyor/service corridor linking the MPO facilities with the Muswellbrook-Ulan Rail Line.
- Modification of the existing development consent boundaries to accommodate the optional conveyor/service corridor and minor administrative boundary changes.

MOD 1 was approved on 19 September 2011.

The MPO South Pit Haul Road Modification (MOD 2) was submitted for approval on 30 January 2017 with a supporting EA prepared by MACH Energy Australia Pty Ltd (MACH Energy) (MACH Energy, 2017).

MOD 2 proposed to realign an indicative internal haul road to enable more efficient access to the South Pit open cut, with no other material changes to the approved MPO.

MOD 2 was approved on 29 March 2017.

The proponent of the MPO is MACH Energy, who purchased the MPO from Coal & Allied Operations Pty Ltd on 26 January 2016 and the acquisition was completed in August 2016.

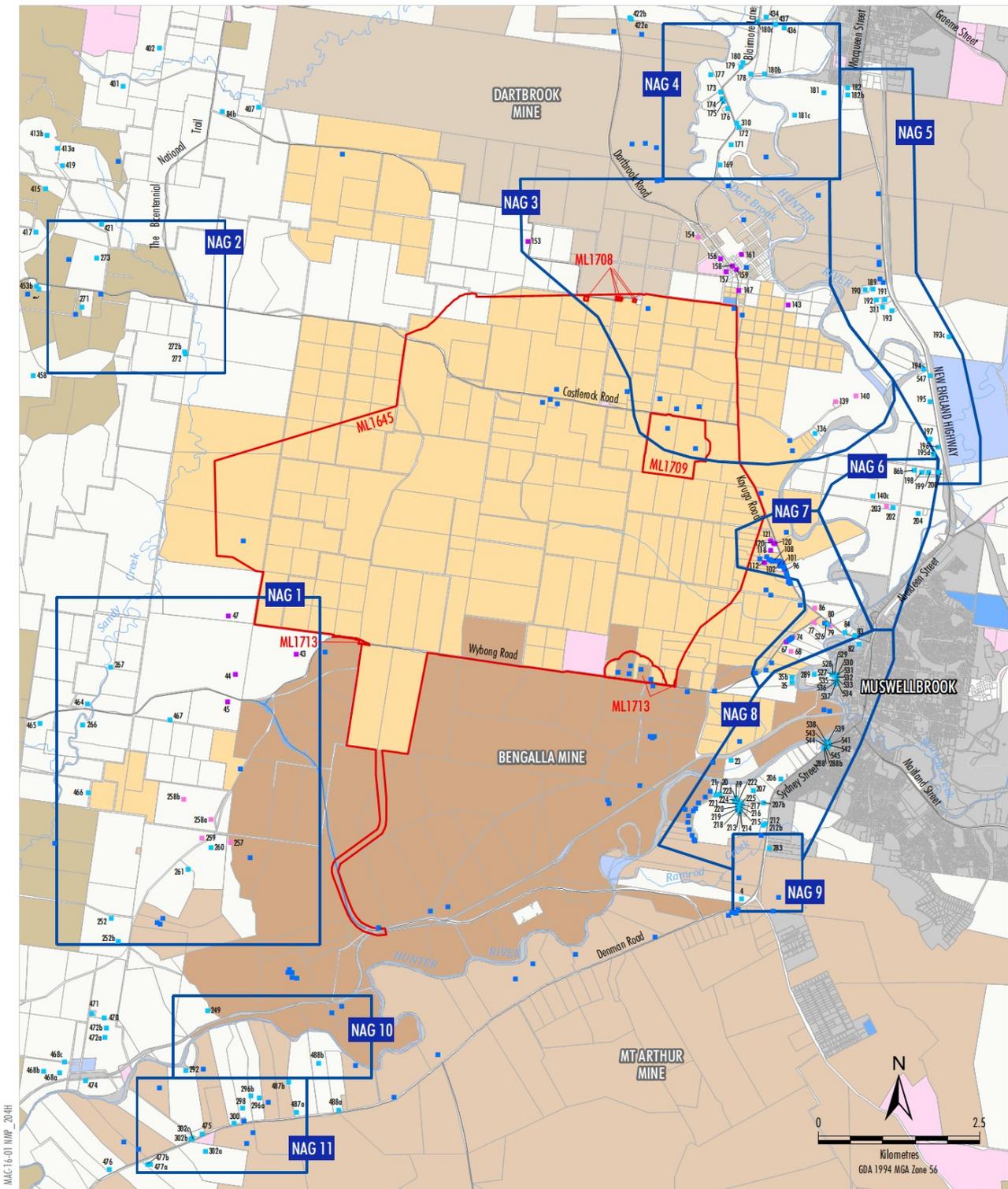
5.2 SENSITIVE RECEPTORS AND NOISE ASSESSMENT GROUPS

Subsequent to the issue of the Modified Development Consent DA 92/97 in September 2011, land ownership in the vicinity of the MPO has changed. For example, a number of formerly privately-owned residences have been acquired by various mining operations.

An expanded list of noise sensitive residences (compared to that assessed in the MOD 1 EA), based on contemporary land ownership and site validation by MACH Energy, is provided in Appendix C. It is noted that this validation has identified some additional private receptors that are not currently included in Development Consent DA 92/97.

As such, the NAGs described in Development Consent DA 92/97 do not account for current knowledge of land ownership in the vicinity of the MPO. If Development Consent DA 92/97 is to be modified in the future, MACH Energy would request that the NSW DP&E update the NAGs to reflect contemporary land ownership.

The receptors sensitive to noise impacts from activities associated with the MPO are shown on Figure 3.



- LEGEND**
- Mining Lease Boundary
 - Mine-owned Dwelling
 - Privately-owned Residence - MPO Acquisition on Request
 - Privately-owned Residence - MPO Mitigation on Request
 - Other Privately-owned Residence
 - Noise Assessment Group (NAG) (DA 92/97)

- Muswellbrook and Upper Hunter LEPs Zones B2, B5, IN1, SP2, R2, R5, RE1, RE2 and W1
- Crown
- The State of NSW
- Muswellbrook Shire Council
- Mount Pleasant Controlled
- Bengalla Controlled
- Dartbrook Controlled
- Mt Arthur Controlled
- Other Mining/Resource Company Controlled
- Privately Owned Land

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)

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MOUNT PLEASANT OPERATION
Relevant Sensitive Receivers
and Noise Assessment Groups

6 NOISE CRITERIA

6.1 DEVELOPMENT CONSENT DA 92/97

6.1.1 Noise Criteria

Condition 3, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to ensure the noise generated by the MPO does not exceed the criteria in Table 7 at any residence on privately-owned land or on more than 25% of any privately-owned land.

The criteria specified in Table 7 do not apply to the noise-affected land subject to acquisition upon request conditions (Section 6.1.3). It is noted that the nearest private receivers to the MPO fall within this category (Figure 3). These criteria also do not apply if MACH Energy has a written agreement with the relevant landowner to exceed the criteria, and MACH Energy has advised the DP&E in writing of the terms of this agreement.

Table 7
Noise Criteria (dBA)

Location		Day	Evening	Night	
		L _{Aeq} (15min)	L _{Aeq} (15min)	L _{Aeq} (15min)	L _{A1} (1min)
NAG 1 ¹	260, 261	37	37	37	45
	258 ²	40	40	40	45
	259	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 2	272	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 3 ¹	139, 154, 240 ²	40	40	40	45
	241 ²	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 4	169	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 5	All privately-owned land	41	40	39	45
NAG 6 ¹	205 ²	41	41	41	45
	203, 242 ²	40	40	40	45
	202	39	39	39	45
	204	38	38	38	45
	All other privately-owned land	37	37	37	45
NAG 7 ¹	68, 74, 279 ²	43	42	42	45
	86, 290 ²	42	42	42	45
	77	42	41	41	45
	79, 80, 231 ³	41	41	41	45
	78 ²	41	40	40	45
	All other privately-owned land	40	37	37	45

**Table 7 (Continued)
Noise Criteria (dBA)**

Location		Day	Evening	Night	
		L _{Aeq} (15min)	L _{Aeq} (15min)	L _{Aeq} (15min)	L _{A1} (1min)
NAG 8	35	42	41	41	45
	289	41	40	40	45
	23, 84	40	40	40	45
	All other privately-owned land	41	39	39	45
NAG 9	All privately-owned land	39	38	37	45
NAG 10	All privately-owned land	35	35	35	45
NAG 11	All privately-owned land	37	36	35	45
All other privately-owned land		35	35	35	45

Source: Development Consent DA 92/97.

Notes:

- ¹ The MOD 1 EA predicted maximum noise levels of 40 dBA at Receiver 257 (located in NAG 1), 39 dBA at Receiver 140 (located in NAG 3), 38 dBA at Receiver 198 (located in NAG 6) and 42 dBA at Receiver 83 (located in NAG 7). While these MOD 1 EA predictions are not reflected in Table 7, Receivers 257 and 140 are entitled to noise mitigation upon request under Development Consent DA 92/97.
 - ² Following a detailed investigation conducted during the preparation of this NMP, it was established that these Receivers are no longer present/inhabited.
 - ³ Following a detailed investigation conducted during the preparation of this NMP, it was established that Receiver 231 is now an uninhabited mine-owned property.
- To identify the locations referred to in Table 7, see Figure 2; and
 - Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW INP.

6.1.2 Cumulative Noise Criteria

Condition 5, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to implement all reasonable and feasible measures to ensure the noise generated by the MPO combined with the noise generated by other mines in the area does not exceed the criteria in Table 8 at any residence on privately-owned land or on more than 25% of privately-owned land. These criteria do not apply to the noise-affected land subject to acquisition upon request conditions (Section 6.1.3)

**Table 8
Cumulative Noise Criteria (dBA)**

Location	Day	Evening	Night
	L _{Aeq} (period)	L _{Aeq} (period)	L _{Aeq} (period)
NAG 8, 9	55	45	40
All other privately-owned land	50	45	40

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 8, see Figure 2; and
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW INP.

6.1.3 Acquisition Criteria

Condition 1, Schedule 3 of Development Consent DA 92/97 requires MACH Energy, upon receiving a written request for acquisition from the owner of the land listed in Table 9, to acquire the land in accordance with the procedures in Condition 6 and Condition 7, Schedule 4 of Development Consent DA 92/97.

Table 9
Land Subject to Acquisition Upon Request

Receiver	Receiver
43, 44 – J. B. Moore	143, 161, 237 ³ – J.S. & N.M. Lonergan
45 – B.A. & T.E. Strachan	147 – M.J. & R.G. Adnum
47 – B.L. & M.L. Bates	156 – J.E. & J.L. Lonergan
67 – J.M. Simpson	158 – J.M. Hoath
96 – R.P. Grey	159, 236 ³ – J.E. & M.S. Ducey
101 – C. Austin ¹ (J.R. & G.P. Mitchell)	129 – R.M. & S.D. Fanell ² (MACH Energy)
102 – A. Mather	130 – M.J. Farrell ² (MACH Energy)
107 – B.L. Wilton ² (MACH Energy)	135, 309 – K.J. & G.M. Yore ² (MACH Energy)
108 – J.S. Gibson	146 – C.R & N.J. Hoath ³
112 – B.D. Barry	153 – G.M. Casey
118 – J. & C. Hayes	157 – R.B. Parkinson & S.A. Peberdy
120, 308 – D.L. & P.A. Moore	229 – C. Horne ³
121 – C & J.M. Moore	263 – R.R. & J.M. Hamilton ² (MACH Energy)
137, 138 A – D.H. MacIntyre ³	C – P.M. Yore ² (MACH Energy)
D – S. Yore ² (MACH Energy)	

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 9, see Figure 2; and
 - All land is noise affected, except Receiver 67 which is air quality affected.
- ¹ It is noted that Receiver 101 is now owned by JR & GP Mitchell.
- ² It is noted that these receivers are now owned by MACH Energy.
- ³ It is noted that following investigation, no dwellings appear to be present at the locations of these previously identified receivers (e.g. habitable building not present, building abandoned, or building used for commercial purposes).

Condition 4, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to acquire the relevant land in Table 10 in accordance with the procedures in Condition 6 and Condition 7, Schedule 4 of Development Consent DA 92/97, if:

- the noise generated by the MPO exceeds the criteria in Table 10 at any residence on privately-owned land or on more than 25 percent of any privately-owned land; and
- MACH Energy receives a written request for acquisition from the landowner.

Table 10
Noise Acquisition Criteria (dBA)

Location	Day	Evening	Night
	L _{Aeq(15min)}	L _{Aeq(15min)}	L _{Aeq(15min)}
All privately-owned land in NAG 1, NAG 2, NAG 3, NAG 4, and NAG 10	40	40	40
All privately-owned land in NAG 5	46	45	44
All privately-owned land in NAG 6	42	42	42
All privately-owned land in NAG 7	45	42	42
All privately-owned land in NAG 8	46	44	44
All privately-owned land in NAG 9	44	43	42
All privately-owned land in NAG 11	42	41	40
All other privately-owned land	40	40	40

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 10, see Figure 2;
- Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW INP; and
- For this condition to apply, the exceedances of the criteria must be systematic.

Condition 6, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to acquire the land in Table 11 on as equitable a basis as possible with the relevant mines in accordance with the procedures in Condition 6 and Condition 7, Schedule 4 of Development Consent DA 92/97, if:

- the noise generated by the MPO combined with the noise generated by other mines in the area exceeds the criteria in Table 11 at any residence on privately-owned land or on more than 25% of privately-owned land; and
- MACH Energy receives a written request for acquisition from the landowner.

Table 11
Cumulative Noise Acquisition Criteria (dBA)

Location	Day	Evening	Night
	L _{Aeq(period)}	L _{Aeq(period)}	L _{Aeq(period)}
NAG 8, 9	60	50	45
All other privately-owned land	55	50	45

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 11, see Figure 2;
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW INP; and
- For this condition to apply, the exceedances of the criteria must be systemic.

6.1.4 Additional Mitigation Criteria

Condition 2, Schedule 3 of Development Consent DA 92/97 requires MACH Energy, upon receiving a written request from the owner of any residence on the land listed in Table 9 or Table 12, to implement additional noise and/or dust mitigation measures (such as double-glazing, insulation, air filters, first flush roof water drainage system and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible¹ and related to the noise and/or dust impacts on the residence.

Table 12
Land Where Additional Noise Mitigation Measures are Available on Request

Receiver	Receiver
68 ¹ – Googe	203 – Millard
74 – Sormaz	205 – Dapkos Pty Ltd ³
77 – Purser	231 – Wicks ² (MACH Energy)
78 ³ , 80 – W.J. Adnum	240 – MacIntyre ³
79 – W.J. & D.W. Adnum	242 – Raphael ³
86, 290 ³ – Cowtime Investments Pty Ltd	257 – Lane
139 – Upton	258 – Ellis
140 – Dapkos Pty Limited	259 – Peel
154 – Standing	279 – Parkinson ³

Source: Development Consent DA 92/97.

Note: To identify the locations referred to in Table 12, see Figure 2.

¹ At the time of writing, this receiver has submitted a written request for acquisition to MACH Energy.

² It is noted that this receiver is now owned by MACH Energy.

³ It is noted that following investigation, no dwellings appear to be present at the locations of these previously identified receivers (e.g. habitable building not present, building abandoned, or building used for commercial purposes).

If MACH Energy and the owner cannot agree on the measures to be implemented within three months of receiving this request from the owner, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary of the DP&E for resolution.

9.2 ATTENDED NOISE MONITORING

9.2.1 Purpose

Attended noise monitoring will be undertaken to determine compliance with the noise criteria in Development Consent DA 92/97.

9.2.2 Monitoring Locations

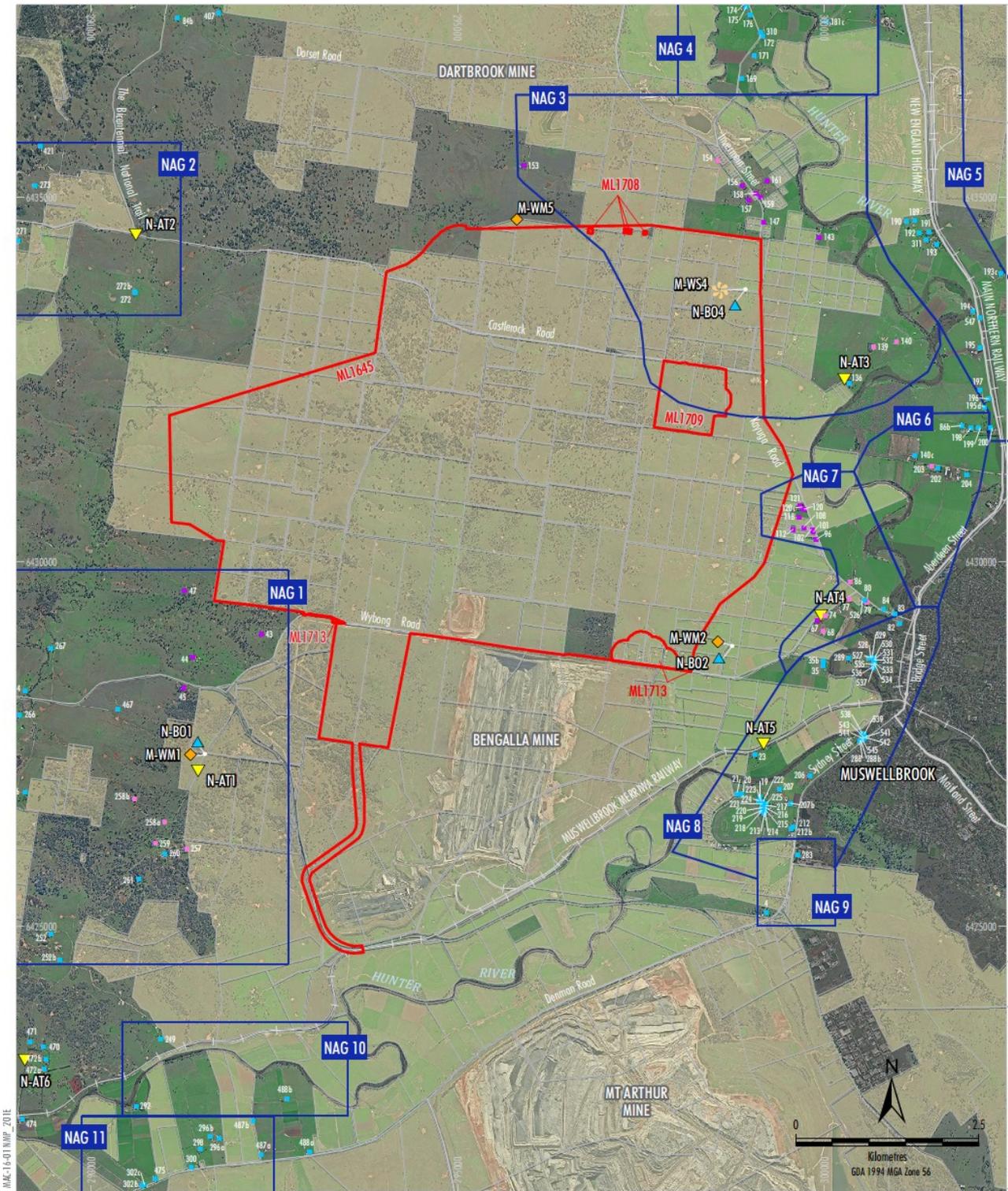
Attended noise monitoring will initially be undertaken at the nominal locations described in Table 15 and shown on Figure 6.

Table 15
Indicative Operator-attended Noise Monitoring Locations

Location				Frequency ¹	Justification
Site ID	Description	Easting	Northing		
N-AT1	South-west of the MPO	291465	6427182	Quarterly	Representative of dwellings to the south-west (i.e. NAG 1)
N-AT2	North-west of the MPO	290608	6434490	Quarterly	Representative of dwellings to the north-west (i.e. NAG 2)
N-AT3	East of the MPO	300270	6432503	Quarterly	Representative of dwellings to the north-east and east (i.e. NAGs 3, 4 and 5)
N-AT4	South-east of the MPO	299947	6429264	Quarterly	Representative of dwellings to the east (i.e. NAGs 6 and 7)
N-AT5	South-east of the MPO	299161	6427503	Quarterly	Representative of dwellings to the south-east (i.e. NAGs 8 and 9)
N-AT6	South-west of the MPO	289092	6423155	Quarterly	Representative of dwellings to the south-west (i.e. NAGs 10 and 11)

¹ Operator-attended noise monitoring will be undertaken quarterly at each monitoring location in accordance with Condition M4.1 of EPL 20850, however, more frequent monitoring may be conducted at a subset of sites (e.g. those in close proximity to operations) as required.

Monitoring locations have been selected as being representative of residential and other sensitive receivers in the vicinity of mining at the MPO. Locations were also selected based on prevailing weather conditions and with consideration given to the privacy of residents. These nominal locations will be periodically updated based on noise monitoring results and review of applicable EPL 20850 requirements that may be updated by the EPA from time to time.



Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)
Orthophoto: MACH Energy (August 2016)

- LEGEND**
- Mining Lease Boundary
 - Mine Owned
 - Privately-owned Residence - MPO Acquisition on Request
 - Privately-owned Residence - MPO Mitigation on Request
 - Other Privately-owned Residence
 - Noise Assessment Group (NAG) (DA 92/97)
 - Monitoring Site
 - ▼ Attended Noise
 - ▲ Real-Time Noise
 - ◆ Weather Mast
 - ✻ Weather Station

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Monitoring Sites

9.2.3 Methodology

The operator-attended noise monitoring will be conducted on a quarterly basis in accordance with Condition M4.1 of EPL 20850. More frequent monitoring may be conducted at a subset of sites (e.g. those in close proximity to operations). Monitoring would be conducted in accordance with AS 1055:1997 *Acoustics – Description and Measurement of Environmental Noise and the INP*.

In accordance with Condition 3, Schedule 5 of Development Consent DA 92/97, the results of the attended monitoring will be compared with the noise criteria (Section 6).

Monitoring reports will be made publicly available on the MACH Energy website in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97. A summary of all monitoring results for each year will be reported in the MPO Annual Review at the end of that year, in accordance with Condition 3, Schedule 5 of Development Consent DA 92/97.

Timing

In accordance with EPL 20850, attended noise monitoring will be undertaken in each quarter for a minimum of:

- 90 minutes during the day (i.e. 7.00 am to 6.00 pm);
- 30 minutes during the evening (i.e. 6.00 pm to 10.00 pm); and
- 60 minutes during the night (i.e. 10.00 pm to 7.00 am);

for three consecutive operating days.

Measurement

Measurement will be undertaken by a suitably experienced and capable person.

Acoustic instrumentation used in attended monitoring will comply with AS 1259.2:1990 Sound Level Meters and carry current National Association of Testing Authorities or manufacturer calibration certificates. Instrument calibration will be conducted before and after each survey, with the variation in calibrated levels not to exceed ± 0.5 dB(A).

Wind direction, wind speed, air temperature and relative humidity will all be recorded as part of the attended noise monitoring. Notes will be taken if there are changes in wind speed/direction at the various monitoring locations or if other relevant changes occur. While this information is gathered, the site data (wind speed/direction) will be included in compliance reports as this is taken at the required 10 m above ground level.

In accordance with EPL requirements, $L_{Aeq(15 \text{ minute})}$ noise monitoring for compliance purposes at a specific residence will be undertaken approximately on the property boundary (where any dwelling is situated 30 m or less from the property boundary closest the premises), or within 30 m of the dwelling (where the dwelling is more than 30 m from the boundary, if previously agreed with the landowner). However, if monitoring is being undertaken at a representative location for a general NAG, this requirement will not apply.

Comprehensive field notes will be taken to indicate mine sources (haul truck, dozer tracks, etc.) and other sources (birds, insects, dogs, passing cars, etc.) and when they occurred during the measurement to the nearest second. The recorded time-trace (at one second intervals) and wavefile will be analysed to quantify the noise contribution from each source. Notes about maximum mine noise levels (source and times) will also be taken. Where practicable, the data would be recorded using a sound level meter or noise logger with the capability to record time-traces and wavefiles.

The intrusive noise level contribution from MPO activities will be quantified over a 15 minute measurement period. In addition, measurements will be made in both A-weighting and C-weighting. Only parameters relevant to noise criteria will be reported.

Modifying factors from Section 4 of the INP will be used where applicable. Tonality and low frequency will be assessed by analysis of the measured L_{Aeq} spectrum³. Analysis should be conducted on a spectrum representative of potential MPO noise. The use of smaller sampling periods may be necessary to assess the applicability of modifying factors.

Details of corrective actions taken to address any noise criteria exceedances, and confirmation of their successful implementation, will be recorded by MACH Energy.

Recording

The following information will be recorded for each monitoring survey:

- operator's name;
- time and date;
- locations of attended or unattended noise instruments;
- recording intervals;
- meteorological conditions for each measurement location (as collected by a hand held meter) and also a combination of graphs and tables presenting the weather conditions for the entire survey period;
- statistical noise level descriptors together with notes identifying the principal noise sources;
- notes of recorded mine-related noise sources, including approximate start and finishing times;
- project operating conditions including train loading times together with mobile and ancillary equipment operation and predominant location; and
- instrument calibration details.

9.2.4 Applicable Meteorological Conditions

As described in Section 8.5, the noise limits set out in Development Consent DA 92/97 and in EPL 20850 do not apply under the following meteorological conditions:

- rain; or
- wind speeds greater than 3 metres/second (m/s) at 10 m above ground level; or
- stability category F temperature inversion conditions and wind speeds greater than 2 m/s at 10 m above ground level; or
- stability category G temperature inversion conditions.

Notwithstanding the above, weather conditions will be monitored (Section 9.4) and, where adverse conditions are experienced or predicted, operational changes will be implemented to avoid or reduce noise impacts.

³ In the event that the measured dBC-dBA level is greater than 15 dB, the 1/3 octave levels would be compared to the modified DEFRA criteria in the *Draft Industrial Noise Guideline* (EPA, 2015) to determine the appropriate modifying factor.

9.2.5 Compliance Assessment Protocol

Attended noise surveys are the primary method for describing the acoustic environment and determining compliance against the relevant noise criteria. Attended noise monitoring is the method for determining sustained compliance with the noise criteria (Table 7), the noise acquisition criteria (Table 10) and the cumulative noise acquisition criteria (Table 11) as this allows for an accurate determination of the MPO's contribution to the measured ambient noise levels.

To determine compliance with the $L_{Aeq(15 \text{ minute})}$ noise limits, attended noise surveys will measure $L_{Aeq(15 \text{ minute})}$ noise levels at representative monitoring locations⁴. Recorded results (rounded to the nearest decibel) will be compared with the noise criteria in Table 16.

Table 16
Operator-attended Noise Monitoring Criteria

Location		Operator-attended Noise Criteria			
Site ID	Description	Day	Evening	Night	Night
		$L_{Aeq(15 \text{ minute})}$			$L_{A1(1 \text{ minute})}$
N-AT1	South-west (representative of land in NAG 1)	43	43	43	45
N-AT2	North-west (representative of land in NAG 2)	36	36	36	45
N-AT3	East/north-east (representative of land in NAGs 3, 4 and 5)	35	35	35	45
N-AT4	East (representative of land in NAGs 6 and 7)	43	42	42	45
N-AT5	South-east (representative of land in NAGs 8 and 9)	40	40	40	45
N-AT6	South-west (representative of land in NAGs 10 and 11)	35	35	35	45

To determine compliance with the $L_{A1(1 \text{ minute})}$ noise levels generated by the MPO, attended noise surveys will measure $L_{A1(1 \text{ minute})}$ noise levels at the representative monitoring locations and then compare the recorded result (rounded to the nearest decibel) with the noise criteria in Section 6. A minimum of one $L_{A1(1 \text{ minute})}$ survey will be conducted during each $L_{Aeq(15 \text{ minute})}$ survey. If it is evident that the $L_{A1(1 \text{ minute})}$ criterion may be approached or exceeded due to MPO noise, arrangements will be made with the landowner to identify the potentially most impacted area of the residence and to conduct future measurements at 1 m from that area where access has been agreed with the landowner.

For the purposes of determining the noise generated at the MPO, the modification factors in Section 4 of the INP will be applied, as appropriate, to the noise levels measured by the noise monitoring equipment. In the event that the measured dBC-dBA level is greater than 15 dB, the 1/3 octave levels would be compared to the modified DEFRA criteria in the *Draft Industrial Noise Guideline* (EPA, 2015) to determine the appropriate modifying factor.

The operator-attended monitoring and noise compliance review process is illustrated in Figure 5.

In determining the noise emission contribution from the MPO, an assessment of the following factors will be undertaken:

- the applicability of the prevailing meteorological conditions (Sections 8.5 and 9.2.4);
- neighbouring mining activities;
- other non-mine related activities, such as:

⁴ In accordance with Condition L2.6 of EPL 20850, a non-compliance will still occur where noise generated from the MPO, in excess of the appropriate limit, is measured at a location other than specified in Section 9.2.2.

- adjacent non-mining related construction activities;
- adjacent agricultural activities;
- traffic on the local road network; and
- adjacent residential activities (e.g. mowing lawns);
- intermittent, tonal or low frequency sound modification factors; and
- reasonableness of data.

In the event of a potential noise criteria exceedance, an assessment will be conducted to determine whether the exceedance is valid. This assessment will include:

- The timing of the exceedance.
- The location of the exceedance.
- The exclusion of non-mine related noise and noise from non-MPO mining activities (e.g. can the exceedance be attributed directly to the MPO). This will include consideration of:
 - the methods and type of equipment being used at the MPO at the time of the exceedance and proximity to the locations at which the exceedance was recorded;
 - the location of non-MPO mining activities or agricultural activities and proximity to the locations at which the exceedance was recorded.
 - the meteorological conditions at the time of the exceedance, including confirmation that meteorological conditions are relevant in accordance with Development Consent DA 92/97 and EPL 20850 and the noise criteria apply (see Section 9.2.4).

If the above assessment determines that a potential noise criteria exceedance is due to MPO-related noise during applicable meteorological conditions, then:

- the exceedance will be reported as soon as practicable to the DP&E, any affected landowners and any other relevant agencies as a noise incident in accordance with Section 12 of this NMP; and
- the noise criteria exceedance will be reported in the Environmental Monitoring Reports and the Annual Review.

Table 3 of Development Consent DA 92/97 specifies the use of the INP for measuring noise generated by the development. It is noted that Section 11.1.3 of the INP includes allowance for the materiality of a noise exceedance, stating:

A development will be deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence condition.

Therefore, while an exceedance of the criteria in Table 3 of Development Consent DA 92/97 (i.e. Table 7 of this NMP) of 1 to 2 dB will be considered a noise incident, the DP&E would determine if the exceedance is considered a non-compliance with Development Consent DA 92/97.

If the above determines that a potential noise criteria exceedance is due to MPO-related noise during applicable meteorological conditions and is a non-compliance, then:

- the non-compliance will be reported as soon as practicable to the DP&E, any affected landowners and any other relevant agencies in accordance with Section 12 of this NMP, and in consideration of Section 11.1.3 of the INP; and
- the non-compliance will be reported in the Environmental Monitoring Reports and Annual Review.

If two non-compliant $L_{Aeq(15\text{ minute})}$ readings (e.g. during applicable meteorological conditions and attributable to the MPO) are taken in the same monitoring period within three months of each other, then the non-compliance would be considered to be sustained and would be reported as such to the DP&E, any affected landowners and any other relevant agencies.

Section 11.1.3 of the INP states the following in relation to when a development is in breach of a noise condition:

A development will be in breach of a noise consent or licence condition if sustained non-compliances are not addressed and rectified.

If a sustained non-compliance with the noise criteria is deemed to have occurred, MACH Energy will report the sustained non-compliance to the DP&E and any other relevant agencies in accordance with Section 12 of this NMP, and in consideration of Section 11.1.3 of the INP.

Where a landowner considers the MPO to be exceeding the noise criteria (Table 7), the noise acquisition criteria (Table 10), or the cumulative noise acquisition criteria (Table 11), the landowner may request an independent review of the impacts in accordance with Condition 3, Schedule 4 of Development Consent DA 92/97.

In accordance with Condition 7, Schedule 5 of Development Consent DA 92/97, as soon as MACH Energy becomes aware of any incident associated with the MPO, MACH Energy will immediately notify the Secretary of the DP&E and any other relevant agencies of the incident. Within seven days of the incident, MACH Energy shall provide the Secretary of the DP&E and any other relevant agencies with a detailed report on the incident, and such further reports as may be requested.

9.2.6 Cumulative Noise Protocol

Attended noise monitoring results will include identification of noise from all industrial sources, as well as all traffic and environmental sources.

Where analysis of the short-term (i.e. 15-minute) attended monitoring results indicates that noise from the nearby mines may contribute to a potential exceedance of the MPO cumulative noise criteria, then MACH Energy will use its best endeavours to coordinate noise management with the relevant mines to minimise cumulative noise impacts.

If each of the mines in the area is complying with its intrusive noise criteria, the cumulative noise criteria are unlikely to be exceeded. Notwithstanding, MACH Energy has developed a process to identify "Other Mine Noise Events" (Figures 4 and 5), whereby noise from another mine(s) contributes significantly to total mine noise levels in excess of the MPO intrusive noise criteria and the MPO contribution is less than the intrusive noise criteria.

In the event that cumulative noise levels become an issue at a particular location once the MPO is operating at maximum approved production levels, MACH Energy would engage with the DP&E and other relevant mine operator(s) to address the concern at that time and update this NMP accordingly.

A.3 MOUNT PLEASANT ENVIRONMENTAL PROTECTION LICENCE (20850)

L2 Noise limits

L2.1 Noise generated at the premises must not exceed the noise limits presented in the table below.

Note:

The noise limits in the table below do not apply if the licensee has a written agreement with the relevant landowner to exceed the noise limit and the licensee has advised the EPA in writing of the terms of the agreement.

The noise limits in the table below do not apply to residences owned by the licensee or those residences that are subject to acquisition as Listed in Table 1 of the Development Consent DA 92/97 (MOD1) dated 19 September 2011.

Location	Day - LAeq(15 minute)	Evening - LAeq(15 minute)	Night - LAeq(15 minute)	Night - LA1(1 minute)
NAG 1 - assessment locations 260 and 261	37	37	37	45
NAG 1 - assessment location 258	40	40	40	45
NAG 1 - assessment location 259	39	39	39	45
NAG 1 - All other privately-owned land	35	35	35	45
NAG 2 - assessment location 272	36	36	36	45
NAG 2 - All other privately-owned land	35	35	35	45
NAG 3 - assessment locations 139, 154 and 240	40	40	40	45
NAG 3 - assessment location 241	39	39	39	45
NAG 3 - All other privately-owned land	35	35	35	45
NAG 4 - assessment location 169	36	36	36	45

NAG 4 - All other privately-owned land	35	35	35	45
NAG 5 - All privately-owned land	41	40	39	45
NAG 6 - assessment location 205	41	41	41	45
NAG 6 - assessment locations 203 and 242	40	40	40	45
NAG 6 - assessment location 202	39	39	39	45
NAG 6 - assessment location 204	38	38	38	45
NAG 6 - All other privately-owned land	37	37	37	45
NAG 7 - assessment locations 68, 74 and 279	43	42	42	45
NAG 7 - assessment locations 86 and 290	42	42	42	45
NAG 7 - assessment location 77	42	41	41	45
NAG 7 - assessment locations 79, 80 and 231	41	41	41	45
NAG 7 - assessment location 78	41	40	40	45
NAG 7 - All other privately-owned land	40	37	37	45
NAG 8 - assessment location 35	42	41	41	45
NAG 8 - assessment location 289	41	40	40	45
NAG 8 - assessment locations 23 and 84	40	40	40	45

NAG 8 - All other privately-owned land	41	39	39	45
NAG 9 - All other privately-owned land	39	38	37	45
NAG 10 - All other privately-owned land	35	35	35	45
NAG 11 - All other privately-owned land	37	36	35	45
All other privately-owned land	35	35	35	45

L2.2 For the purpose of this licence the following definitions apply.

NAG is to be read as 'Noise Assessment Group'.

The locations of the Noise Assessment Groups are defined in Appendix 6 of the Determination of Development Application for the Mount Pleasant Coal Mine DA92/97, as modified on 19 September 2011.

Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays.

Evening is defined as the period from 6pm to 10pm.

Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

L2.3 The noise limits set out in this licence apply under all meteorological conditions except for the following:

- a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
- b) Stability category F temperature inversion conditions and wind speeds greater than 2metres/second at 10 metres above ground level; or
- c) Stability category G temperature inversion conditions.

For the purposes of this condition:

- i) Data recorded by the meteorological station within the licensed premises must be used to determine meteorological conditions; and
- ii) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.

L2.4 Determining Compliance

To determine compliance:

- a) with the LAeq(15 minute) noise limits in this licence, the noise measurement equipment must be located:
 - i) approximately on the property boundary, where any dwelling is situated 30 metres or less

- from the property boundary closest to the premises; or
- ii) within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable
- iii) within approximately 50 metres of the boundary of a National Park or a Nature Reserve.
- b) with the LA1(1 minute) noise limits in this licence, the noise measurement equipment must be located within 1 metre of a dwelling façade.
- c) with the noise limits in this licence, the noise measurement equipment must be located:
 - i) at the most affected point at a location where there is no dwelling at the location; or
 - ii) at the most affected point within an area at a location prescribed by part (a) or part (b) of this condition.

- L2.5 Where it can be demonstrated that direct measurement of noise from the premises is impractical, the EPA may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy
- L2.6 A non-compliance with the noise limits specified in this licence will still occur where noise generated from the premises in excess of the appropriate limit is measured:
 - i) at a location other than an area prescribed in part (a) and part (b) of condition L2.4; or
 - ii) at a point other than the most affected point at a location.
- L2.7 For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

M4 Environmental monitoring

- M4.1 To assess compliance with condition L2.1, attended noise monitoring must be undertaken in accordance with condition L2.4 and:
 - a) at each one of the locations or at a location representative of the most-affected locations listed in condition L2.1; and
 - b) occur quarterly in a reporting period; and
 - c) occur during each day, evening and night period as defined in the NSW Industrial Noise Policy for a minimum of:
 - 90 minutes during the day;
 - 30 minutes during the evening; and
 - 60 minutes during the night; and
 - d) occur for three consecutive operating days.

APPENDIX

B CALIBRATION CERTIFICATES



**Acoustic
Research
Labs Pty Ltd**

Level 7 Building 2 423 Pennant Hills Rd
Pennant Hills NSW AUSTRALIA 2120
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

**Sound Level Meter
IEC 61672-3:2013**

Calibration Certificate

Calibration Number C17248

Client Details Global Acoustics Pty Ltd
12/16 Huntingdale Drive
Thornton NSW 2322

Equipment Tested/ Model Number : Rion NA-28
Instrument Serial Number : 00701424
Microphone Serial Number : 01916
Pre-amplifier Serial Number : 01463

Pre-Test Atmospheric Conditions
Ambient Temperature : 24.3°C
Relative Humidity : 40%
Barometric Pressure : 100.05kPa

Post-Test Atmospheric Conditions
Ambient Temperature : 24.4°C
Relative Humidity : 39.5%
Barometric Pressure : 100kPa

Calibration Technician : Vicky Jaiswal
Calibration Date : 05/06/2017

Secondary Check: Nick Williams
Report Issue Date : 06/06/2017

Approved Signatory :

Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	Pass	17: Level linearity incl. the level range control	Pass
13: Electrical Sig. tests of frequency weightings	Pass	18: Toneburst response	Pass
14: Frequency and time weightings at 1 kHz	Pass	19: C Weighted Peak Sound Level	Pass
15: Long Term Stability	Pass	20: Overload Indication	Pass
16: Level linearity on the reference level range	Pass	21: High Level Stability	Pass

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Least Uncertainties of Measurement -

Acoustic Tests
31.5 Hz to 8kHz ±0.16dB
12.5kHz ±0.2dB
16kHz ±0.29dB
Electrical Tests
31.5 Hz to 20 kHz ±0.12dB

Environmental Conditions
Temperature ±0.05°C
Relative Humidity ±0.46%
Barometric Pressure ±0.017kPa

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.



Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

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Sound Level Meter
IEC 61672-3:2006

Calibration Certificate

Calibration Number C16643

Client Details Global Acoustics Pty Ltd
12/16 Huntingdale Drive
Thornton NSW 2322

Equipment Tested/ Model Number : Rion NA-28
Instrument Serial Number : 00370304
Microphone Serial Number : 10421
Pre-amplifier Serial Number : 60313

Pre-Test Atmospheric Conditions
Ambient Temperature : 22.2°C
Relative Humidity : 46.6%
Barometric Pressure : 99.95kPa

Post-Test Atmospheric Conditions
Ambient Temperature : 22.4°C
Relative Humidity : 44.5%
Barometric Pressure : 99.95kPa

Calibration Technician : Vicky Jaiswal
Calibration Date : 16/11/2016

Secondary Check: Sandra Minto
Report Issue Date : 17/11/2016

Approved Signatory :

Juan Agüero

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
10: Self-generated noise	Pass	14: Level linearity on the reference level range	Pass
11: Acoustical tests of a frequency weighting	Pass	15: Level linearity incl. the level range control	Pass
12: Electrical tests of frequency weightings	Pass	16: Toneburst response	Pass
13: Frequency and time weightings at 1 kHz	Pass	17: Peak C sound level	Pass
		18: Overload Indication	Pass

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Least Uncertainties of Measurement - Environmental Conditions			
Acoustic Tests		Temperature	±0.05°C
31.5 Hz to 8kHz	±0.12dB	Relative Humidity	±0.46%
12.5kHz	±0.18dB	Barometric Pressure	±0.017kPa
16kHz	±0.31dB		
Electrical Tests			
31.5 Hz to 20 kHz	±0.12dB		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



This calibration certificate is to be read in conjunction with the calibration test report.

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Octave Band Filter
AS 4476:1997
Calibration Certificate

Calibration Number C18363A

Client Details Global Acoustics Pty Ltd
12/16 Huntingdale Drive
Thornton NSW 2322

Filter Model Number : Rion NA-28
Filter Serial Number : N/A
Instrument Serial Number : 01070590
Microphone Serial Number : 08184
Pre-amplifier Serial Number : 52329

Atmospheric Conditions

Ambient Temperature : 22.8°C
Relative Humidity : 37.7%
Barometric Pressure : 100.82kPa

Calibration Technician : Lucky jaiswal
Calibration Date : 25 Jun 2018
Secondary Check: Lewis Boorman
Report Issue Date : 25 Jun 2018

Approved Signatory :

Juan Aguero

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
4.4 & 5.3: 1/1 Octave relative attenuation	Pass	4.6 & 5.5: Linear operating range	Pass
4.4 & 5.3: 1/3 Octave relative attenuation	Pass	4.8 & 5.7: Anti-alias filters	Pass
		4.10 & 5.9: Flat frequency response	Pass

The fractional octave band meter under test has been shown to conform to the class 1 requirements for periodic testing as described in AS 4476:1997 for the tests stated above.

Electrical Tests

< 16Hz ±0.19dB
16Hz-100Hz ±0.11dB
100Hz-1000Hz ±0.09dB
1000Hz-10kHz ±0.09dB
> 10kHz ±0.16dB

**Least Uncertainties of Measurement -
Environmental Conditions**

Temperature ±0.03°C
Relative Humidity ±2.3%
Barometric Pressure ±0.017kPa

All uncertainties are derived at the 95% confidence level with a coverage factor of 2

This calibration certificate is to be read in conjunction with the calibration test report.



Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - calibration

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

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Sound Calibrator

IEC 60942-2004

Calibration Certificate

Calibration Number C17249

Client Details Global Acoustics Pty Ltd
12/16 Huntingdale Drive
Thornton NSW 2322

Equipment Tested/ Model Number : Pulsar 106
Instrument Serial Number : 74813

Atmospheric Conditions

Ambient Temperature : 24.3°C
Relative Humidity : 38.9%
Barometric Pressure : 99.96kPa

Calibration Technician : Vicky Jaiswal
Calibration Date : 05/06/2017

Secondary Check: Nick Williams
Report Issue Date : 06/06/2017

Approved Signatory :

Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
5.2.2: Generated Sound Pressure Level	Pass	5.3.2: Frequency Generated	Pass
5.2.3: Short Term Fluctuation	Pass	5.5: Total Distortion	Pass

	Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
Measured Output	94.0	1000.0	93.8	1000.33

The sound calibrator has been shown to conform to the class 2 requirements for periodic testing, described in Annex B of IEC 60942:2004 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Least Uncertainties of Measurement -

Specific Tests

Generated SPL ±0.11dB
Short Term Fluct. ±0.02dB
Frequency ±0.01%
Distortion ±0.5%

Environmental Conditions

Temperature ±0.05°C
Relative Humidity ±0.46%
Barometric Pressure ±0.017kPa

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.



WORLD RECOGNISED
ACCREDITATION

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

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Sound Calibrator

IEC 60942-2004

Calibration Certificate

Calibration Number C17682_Reissued

Client Details Global Acoustics Pty Ltd
12/16 Huntingdale Drive
Thornton NSW 2322

Equipment Tested/ Model Number : Pulsar 106
Instrument Serial Number : 81334

Atmospheric Conditions

Ambient Temperature : 23.5°C
Relative Humidity : 49.8%
Barometric Pressure : 98.79kPa

Calibration Technician : Vicky Jaiswal
Calibration Date : 18 Dec 2017

Secondary Check: Riley Cooper
Report Issue Date : 27 Mar 2018

Approved Signatory :

Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
5.2.2: Generated Sound Pressure Level	Pass	5.3.2: Frequency Generated	Pass
5.2.3: Short Term Fluctuation	Pass	5.5: Total Distortion	Pass

	Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
Measured Output	94.0	1000.0	94.1	1000.36

The sound calibrator has been shown to conform to the class 2 requirements for periodic testing, described in Annex B of IEC 60942:2004 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed.

Least Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	±0.1dB	Temperature	±°C
Short Term Fluct.	±0.02dB	Relative Humidity	±%
Frequency	±0.01%	Barometric Pressure	±kPa
Distortion	±0.5%		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.



Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

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Sound Calibrator
IEC 60942-2004

Calibration Certificate

Calibration Number C17149

Client Details Global Acoustics Pty Ltd
12/16 Huntingdale Drive
Thornton NSW 2322

Equipment Tested/ Model Number : Pulsar 106
Instrument Serial Number : 79631

Atmospheric Conditions

Ambient Temperature : 21.9°C
Relative Humidity : 54.6%
Barometric Pressure : 98.84kPa

Calibration Technician : Vicky Jaiswal
Calibration Date : 30/03/2017
Secondary Check: Riley Cooper
Report Issue Date : 31/03/2017

Approved Signatory :

Juan Agüero

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
5.2.2: Generated Sound Pressure Level	Pass	5.3.2: Frequency Generated	Pass
5.2.3: Short Term Fluctuation	Pass	5.5: Total Distortion	Pass

	Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
Measured Output	94.0	1000.0	94.1	1000.38

The sound calibrator has been shown to conform to the class 2 requirements for periodic testing, described in Annex B of IEC 60942.2004 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed.

Least Uncertainties of Measurement -			
Specific Tests		Environmental Conditions	
Generated SPL	±0.11dB	Temperature	±0.05°C
Short Term Fluct.	±0.02dB	Relative Humidity	±0.46%
Frequency	±0.01%	Barometric Pressure	±0.017kPa
Distortion	±0.5%		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.



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The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

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APPENDIX

C METEOROLOGICAL DATA

MTP METEOROLOGICAL STATION DATA

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
28/05/2018 07:00	7	2.2	291	0.5	E	5	0.0
28/05/2018 07:10	7	2.0	305	0.5	E	6	0.0
28/05/2018 07:20	7	1.1	305	-1.6	C	13	0.0
28/05/2018 07:30	7	0.3	302	-2.0	A	49	0.0
28/05/2018 07:40	7	0.7	282	-2.0	A	46	0.0
28/05/2018 07:50	7	1.1	289	-1.6	C	14	0.0
28/05/2018 08:00	7	1.1	74	-1.6	C	12	0.0
28/05/2018 08:10	6	0.5	75	-2.0	A	50	0.0
28/05/2018 08:20	6	0.6	237	-2.0	A	29	0.0
28/05/2018 08:30	7	0.8	286	-2.0	A	27	0.0
28/05/2018 08:40	8	0.8	45	-1.8	B	17	0.0
28/05/2018 08:50	8	0.6	255	-2.0	A	32	0.0
28/05/2018 09:00	8	1.6	285	-1.0	D	7	0.0
28/05/2018 09:10	8	2.0	292	0.5	E	6	0.0
28/05/2018 09:20	9	1.7	303	-1.0	D	8	0.0
28/05/2018 09:30	10	1.4	330	-1.6	C	16	0.0
28/05/2018 09:40	10	0.5	304	-2.0	A	26	0.0
28/05/2018 09:50	11	0.7	279	-2.0	A	31	0.0
28/05/2018 10:00	12	0.9	307	-2.0	A	33	0.0
28/05/2018 10:10	13	0.9	1	-2.0	A	35	0.0
28/05/2018 10:20	14	0.3	339	-2.0	A	75	0.0
28/05/2018 10:30	14	0.7	339	-2.0	A	35	0.0
28/05/2018 10:40	15	0.4	320	-2.0	A	36	0.0
28/05/2018 10:50	16	0.7	271	-2.0	A	25	0.0
28/05/2018 11:00	16	0.8	359	-2.0	A	43	0.0
28/05/2018 11:10	16	0.6	55	-2.0	A	32	0.0
28/05/2018 11:20	16	1.1	275	-2.0	A	29	0.0
28/05/2018 11:30	16	0.4	304	-2.0	A	64	0.0
28/05/2018 11:40	17	0.7	117	-2.0	A	37	0.0
28/05/2018 11:50	17	0.9	105	-2.0	A	23	0.0
28/05/2018 12:00	17	0.3	171	-2.0	A	36	0.0
28/05/2018 12:10	17	1.6	154	-2.0	A	25	0.0
28/05/2018 12:20	17	1.9	159	-1.6	C	14	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
28/05/2018 12:30	17	2.2	155	-1.6	C	14	0.0
28/05/2018 12:40	17	2.3	153	-1.6	C	16	0.0
28/05/2018 12:50	17	2.1	158	-1.8	B	17	0.0
28/05/2018 13:00	18	1.7	156	-1.8	B	17	0.0
28/05/2018 13:10	18	1.7	164	-2.0	A	21	0.0
28/05/2018 13:20	18	1.5	140	-1.6	C	15	0.0
28/05/2018 13:30	18	2.3	135	-1.0	D	8	0.0
28/05/2018 13:40	18	2.4	138	-1.0	D	11	0.0
28/05/2018 13:50	18	2.4	155	-1.6	C	12	0.0
28/05/2018 14:00	18	2.5	132	-1.6	C	12	0.0
28/05/2018 14:10	18	2.5	146	0.5	E	6	0.0
28/05/2018 14:20	18	1.9	144	-1.0	D	8	0.0
28/05/2018 14:30	18	1.7	141	-1.6	C	12	0.0
28/05/2018 14:40	19	1.2	146	-1.8	B	19	0.0
28/05/2018 14:50	19	1.7	150	-1.8	B	20	0.0
28/05/2018 15:00	19	1.6	148	-1.6	C	12	0.0
28/05/2018 15:10	19	1.2	147	-1.8	B	17	0.0
28/05/2018 15:20	19	1.2	132	-1.0	D	9	0.0
28/05/2018 15:30	19	1.5	153	-1.0	D	9	0.0
28/05/2018 15:40	19	1.1	175	-1.6	C	12	0.0
28/05/2018 15:50	19	1.1	160	-1.6	C	12	0.0
28/05/2018 16:00	19	1.0	122	-1.6	C	13	0.0
28/05/2018 16:10	19	0.9	115	0.5	E	5	0.0
28/05/2018 16:20	18	0.9	103	0.5	E	6	0.0
28/05/2018 16:30	18	1.0	99	-1.0	D	9	0.0
28/05/2018 16:40	18	1.0	131	-1.6	C	15	0.0
28/05/2018 16:50	18	1.0	134	-1.0	D	8	0.0
28/05/2018 17:00	18	1.0	141	-1.0	D	7	0.0
28/05/2018 17:10	17	1.3	140	0.5	E	4	0.0
28/05/2018 17:20	18	0.8	131	-1.0	D	8	0.0
28/05/2018 17:30	17	1.0	134	-1.0	D	10	0.0
28/05/2018 17:40	17	0.7	129	-1.0	D	11	0.0
28/05/2018 17:50	17	0.7	102	-1.6	C	12	0.0
28/05/2018 18:00	17	0.5	97	-1.0	D	8	0.0
28/05/2018 18:00	17	0.5	97	-1.0	D	8	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
28/05/2018 18:10	17	0.4	99	3.0	F	19	0.0
28/05/2018 18:20	16	0.6	116	0.5	E	15	0.0
28/05/2018 18:30	16	0.9	128	-1.0	D	7	0.0
28/05/2018 18:40	16	0.6	112	-1.0	D	9	0.0
28/05/2018 18:50	15	0.5	90	0.5	E	16	0.0
28/05/2018 19:00	15	0.5	75	3.0	F	17	0.0
28/05/2018 19:10	15	0.6	299	0.5	E	12	0.0
28/05/2018 19:20	15	0.4	305	3.0	F	28	0.0
28/05/2018 19:30	15	0.5	17	3.0	F	21	0.0
28/05/2018 19:40	15	0.8	10	3.0	F	19	0.0
28/05/2018 19:50	15	1.7	328	-1.0	D	8	0.0
28/05/2018 20:00	14	2.0	322	-1.0	D	8	0.0
28/05/2018 20:10	13	2.2	301	0.5	E	6	0.0
28/05/2018 20:20	13	2.0	300	-1.0	D	8	0.0
28/05/2018 20:30	13	1.9	290	0.5	E	5	0.0
28/05/2018 20:40	14	2.3	296	-1.0	D	7	0.0
28/05/2018 20:50	14	1.7	271	-1.0	D	7	0.0
28/05/2018 21:00	14	1.5	302	0.5	E	12	0.0
28/05/2018 21:10	14	1.4	330	0.5	E	14	0.0
28/05/2018 21:20	14	1.9	308	0.5	E	4	0.0
28/05/2018 21:30	13	2.4	305	3.0	F	3	0.0
28/05/2018 21:40	13	2.8	305	3.0	F	1	0.0
28/05/2018 21:50	13	2.6	304	3.0	F	2	0.0
28/05/2018 22:00	13	2.6	305	0.5	E	5	0.0
28/05/2018 22:00	13	2.6	305	0.5	E	5	0.0
28/05/2018 22:10	12	1.7	302	-1.0	D	8	0.0
28/05/2018 22:20	12	1.0	324	-1.0	D	11	0.0
28/05/2018 22:30	12	0.1	271	3.0	F	29	0.0
28/05/2018 22:40	11	0.4	53	3.0	F	19	0.0
28/05/2018 22:50	11	0.9	39	0.5	E	5	0.0
28/05/2018 23:00	11	0.8	14	-1.0	D	8	0.0
28/05/2018 23:10	11	1.2	6	0.5	E	6	0.0
28/05/2018 23:20	11	1.1	337	0.5	E	5	0.0
28/05/2018 23:30	11	1.5	320	3.0	F	3	0.0
28/05/2018 23:40	10	1.5	313	3.0	F	3	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
28/05/2018 23:50	11	1.5	306	0.5	E	5	0.0
29/05/2018 00:00	11	1.7	298	-1.0	D	7	0.0
29/05/2018 00:10	10	1.5	288	-1.0	D	7	0.0
29/05/2018 00:20	10	0.6	292	0.5	E	13	0.0
29/05/2018 00:30	10	0.3	110	3.0	F	34	0.0
29/05/2018 00:40	9	0.8	130	0.5	E	5	0.0
29/05/2018 00:50	9	0.8	109	-1.0	D	8	0.0
29/05/2018 01:00	9	1.1	67	-1.0	D	10	0.0
29/05/2018 01:10	9	1.0	52	-1.0	D	8	0.0
29/05/2018 01:20	9	0.8	21	-1.0	D	7	0.0
29/05/2018 01:30	9	1.3	352	0.5	E	5	0.0
29/05/2018 01:40	9	2.0	315	0.5	E	4	0.0
29/05/2018 01:50	9	2.2	315	3.0	F	3	0.0
29/05/2018 02:00	8	2.4	308	3.0	F	3	0.0
29/05/2018 02:10	8	2.0	314	0.5	E	5	0.0
29/05/2018 02:20	8	2.2	311	0.5	E	4	0.0
29/05/2018 02:30	8	2.7	307	3.0	F	3	0.0
29/05/2018 02:40	8	2.8	299	3.0	F	3	0.0
29/05/2018 02:50	8	2.8	311	0.5	E	5	0.0
29/05/2018 03:00	8	2.9	308	0.5	E	5	0.0
29/05/2018 03:10	8	2.8	307	0.5	E	6	0.0
29/05/2018 03:20	8	2.7	303	0.5	E	5	0.0
29/05/2018 03:30	7	2.3	302	0.5	E	6	0.0
29/05/2018 03:40	7	2.5	309	-1.0	D	8	0.0
29/05/2018 03:50	7	2.4	306	3.0	F	3	0.0
29/05/2018 04:00	7	2.3	290	0.5	E	6	0.0
29/05/2018 04:10	7	2.2	290	0.5	E	4	0.0
29/05/2018 04:20	8	2.1	308	0.5	E	5	0.0
29/05/2018 04:30	8	1.4	327	0.5	E	4	0.0
29/05/2018 04:40	8	1.6	322	0.5	E	5	0.0
29/05/2018 04:50	7	1.8	327	0.5	E	5	0.0
29/05/2018 05:00	7	1.7	322	0.5	E	5	0.0
29/05/2018 05:10	7	2.3	323	0.5	E	5	0.0
29/05/2018 05:20	7	2.0	318	0.5	E	4	0.0
29/05/2018 05:30	7	2.2	322	0.5	E	5	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
29/05/2018 05:40	7	2.1	309	0.5	E	4	0.0
29/05/2018 05:50	7	2.1	287	0.5	E	4	0.0
29/05/2018 06:00	7	2.3	295	-1.0	D	8	0.0
29/05/2018 06:10	7	2.2	288	-1.0	D	7	0.0
29/05/2018 06:20	7	2.4	302	0.5	E	6	0.0
29/05/2018 06:30	6	2.1	301	0.5	E	5	0.0
29/05/2018 06:40	6	2.2	304	3.0	F	3	0.0
29/05/2018 06:50	7	2.7	304	3.0	F	2	0.0
29/05/2018 07:00	7	2.5	293	0.5	E	4	0.0
29/05/2018 07:00	7	2.5	293	0.5	E	4	0.0
29/05/2018 07:10	7	2.3	283	0.5	E	5	0.0
29/05/2018 07:20	7	2.3	296	0.5	E	6	0.0
29/05/2018 07:30	8	2.0	287	0.5	E	6	0.0
29/05/2018 07:40	8	2.1	292	0.5	E	6	0.0
29/05/2018 07:50	8	2.3	300	0.5	E	6	0.0
29/05/2018 08:00	8	2.1	297	-1.0	D	8	0.0
29/05/2018 08:10	8	1.8	318	-1.0	D	11	0.0
29/05/2018 08:20	9	2.0	325	-1.0	D	11	0.0
29/05/2018 08:30	9	1.8	318	-1.6	C	15	0.0
29/05/2018 08:40	10	1.8	305	-1.6	C	15	0.0
29/05/2018 08:50	10	1.9	312	-1.6	C	13	0.0
29/05/2018 09:00	10	2.2	325	-1.0	D	10	0.0
29/05/2018 09:10	11	2.0	321	-1.0	D	11	0.0
29/05/2018 09:20	12	2.2	316	-1.0	D	9	0.0
29/05/2018 09:30	12	2.4	325	-1.0	D	9	0.0
29/05/2018 09:40	13	2.4	314	-1.0	D	11	0.0
29/05/2018 09:50	13	2.5	316	-1.6	C	13	0.0
29/05/2018 10:00	14	2.7	319	-1.6	C	13	0.0
29/05/2018 10:10	15	2.5	316	-1.6	C	14	0.0
29/05/2018 10:20	16	2.5	309	-1.6	C	14	0.0
29/05/2018 10:30	16	2.4	321	-1.0	D	11	0.0
29/05/2018 10:40	17	2.0	329	-1.8	B	18	0.0
29/05/2018 10:50	17	2.3	334	-1.6	C	12	0.0
29/05/2018 11:00	18	2.4	352	-1.8	B	17	0.0
29/05/2018 11:10	18	1.9	338	-2.0	A	22	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
29/05/2018 11:20	19	2.2	319	-1.6	C	16	0.0
29/05/2018 11:30	20	2.4	332	-1.6	C	15	0.0
29/05/2018 11:40	20	2.3	342	-1.8	B	19	0.0
29/05/2018 11:50	21	2.4	337	-1.6	C	13	0.0
29/05/2018 12:00	21	2.2	340	-2.0	A	24	0.0
29/05/2018 12:10	22	1.8	339	-2.0	A	28	0.0
29/05/2018 12:20	22	2.0	320	-2.0	A	27	0.0
29/05/2018 12:30	23	1.3	350	-2.0	A	50	0.0
29/05/2018 12:40	23	1.5	350	-2.0	A	23	0.0
29/05/2018 12:50	22	0.7	229	-2.0	A	61	0.0
29/05/2018 13:00	23	1.1	162	-2.0	A	32	0.0
29/05/2018 13:10	23	1.5	142	-1.6	C	16	0.0
29/05/2018 13:20	23	1.5	231	-2.0	A	44	0.0
29/05/2018 13:30	22	1.9	190	-1.8	B	17	0.0
29/05/2018 13:40	22	1.8	223	-1.8	B	17	0.0
29/05/2018 13:50	22	0.7	257	-2.0	A	43	0.0
29/05/2018 14:00	23	2.5	273	-2.0	A	24	0.0
29/05/2018 14:10	23	4.9	273	-1.0	D	8	0.0
29/05/2018 14:20	23	5.1	291	-1.0	D	9	0.0
29/05/2018 14:30	23	3.3	308	-1.6	C	16	0.0
29/05/2018 14:40	24	2.6	258	-1.8	B	20	0.0
29/05/2018 14:50	23	4.2	257	-1.0	D	9	0.0
29/05/2018 15:00	22	3.7	257	-1.0	D	8	0.0
29/05/2018 15:10	22	2.5	274	-1.0	D	8	0.0
29/05/2018 15:20	22	1.3	321	-1.6	C	14	0.0
29/05/2018 15:30	22	1.4	318	-1.8	B	18	0.0
29/05/2018 15:40	22	0.9	324	-2.0	A	26	0.0
29/05/2018 15:50	23	2.2	337	-2.0	A	58	0.0
29/05/2018 16:00	23	4.1	317	-1.6	C	12	0.0
29/05/2018 16:10	22	4.9	327	-1.0	D	8	0.0
29/05/2018 16:20	22	4.3	328	-1.0	D	7	0.0
29/05/2018 16:30	21	3.4	331	0.5	E	5	0.0
29/05/2018 16:40	21	2.3	325	-1.0	D	8	0.0
29/05/2018 16:50	21	2.1	319	-1.0	D	7	0.0
29/05/2018 17:00	20	1.5	317	-1.0	D	8	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
29/05/2018 17:10	20	1.7	316	0.5	E	6	0.0
29/05/2018 17:20	19	2.0	319	0.5	E	5	0.0
29/05/2018 17:30	19	1.8	306	0.5	E	6	0.0
29/05/2018 17:40	19	2.0	316	0.5	E	6	0.0
29/05/2018 17:50	19	1.7	329	-1.0	D	8	0.0
29/05/2018 18:00	18	1.7	332	0.5	E	6	0.0
29/05/2018 18:00	18	1.7	332	0.5	E	6	0.0
29/05/2018 18:10	18	2.1	325	-1.0	D	8	0.0
29/05/2018 18:20	18	2.3	326	-1.0	D	8	0.0
29/05/2018 18:30	18	2.3	312	-1.0	D	7	0.0
29/05/2018 18:40	17	2.2	301	-1.0	D	8	0.0
29/05/2018 18:50	17	1.8	324	-1.0	D	10	0.0
29/05/2018 19:00	16	2.2	317	-1.0	D	9	0.0
29/05/2018 19:10	16	2.4	318	-1.0	D	9	0.0
29/05/2018 19:20	16	2.5	318	-1.0	D	8	0.0
29/05/2018 19:30	16	2.4	317	-1.0	D	8	0.0
29/05/2018 19:40	16	2.5	315	-1.0	D	8	0.0
29/05/2018 19:50	15	2.6	313	-1.0	D	10	0.0
29/05/2018 20:00	15	2.3	307	-1.0	D	11	0.0
29/05/2018 20:10	15	2.3	300	-1.0	D	8	0.0
29/05/2018 20:20	15	2.3	303	-1.0	D	9	0.0
29/05/2018 20:30	15	2.1	296	-1.0	D	9	0.0
29/05/2018 20:40	14	2.6	299	0.5	E	6	0.0
29/05/2018 20:50	14	2.7	293	-1.0	D	8	0.0
29/05/2018 21:00	14	2.4	294	-1.0	D	9	0.0
29/05/2018 21:10	14	2.6	289	-1.0	D	9	0.0
29/05/2018 21:20	14	2.3	292	-1.0	D	10	0.0
29/05/2018 21:30	14	2.4	295	-1.0	D	8	0.0
29/05/2018 21:40	14	2.3	298	0.5	E	12	0.0
29/05/2018 21:50	14	2.6	299	-1.0	D	9	0.0
29/05/2018 22:00	14	2.5	301	0.5	E	6	0.0
29/05/2018 22:00	14	2.5	301	0.5	E	6	0.0
29/05/2018 22:10	14	2.8	302	-1.0	D	7	0.0
29/05/2018 22:20	14	3.1	303	-1.0	D	8	0.0
29/05/2018 22:30	14	2.8	306	-1.0	D	7	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
29/05/2018 22:40	14	2.4	314	-1.0	D	12	0.0
29/05/2018 22:50	14	2.8	319	-1.0	D	11	0.0
29/05/2018 23:00	14	2.8	321	-1.0	D	14	0.0
29/05/2018 23:10	14	3.0	327	-1.0	D	9	0.0
29/05/2018 23:20	14	3.2	330	-1.0	D	8	0.0
29/05/2018 23:30	14	2.5	313	-1.0	D	15	0.0
29/05/2018 23:40	14	2.7	293	-1.0	D	8	0.0
29/05/2018 23:50	14	4.3	241	-1.0	D	20	0.0
30/05/2018 00:00	17	3.6	231	-1.0	D	14	0.0
30/05/2018 00:10	17	3.2	217	-1.0	D	14	0.0
30/05/2018 00:20	16	2.9	194	-1.0	D	12	0.0
30/05/2018 00:30	16	3.6	198	-1.0	D	12	0.0
30/05/2018 00:40	16	3.2	206	-1.0	D	11	0.0
30/05/2018 00:50	15	3.2	195	-1.0	D	11	0.0
30/05/2018 01:00	15	2.6	202	0.5	E	19	0.0
30/05/2018 01:10	15	4.9	243	-1.0	D	9	1.0
30/05/2018 01:20	14	3.6	259	-1.0	D	8	1.0
30/05/2018 01:30	13	1.4	13	3.0	F	21	0.4
30/05/2018 01:40	13	2.3	43	0.5	E	5	1.0
30/05/2018 01:50	13	1.2	47	0.5	E	13	0.2
30/05/2018 02:00	13	1.7	52	0.5	E	14	0.0
30/05/2018 02:10	13	1.1	46	0.5	E	15	0.0
30/05/2018 02:20	13	2.0	343	3.0	F	17	0.0
30/05/2018 02:30	13	2.3	299	-1.0	D	10	0.2
30/05/2018 02:40	13	2.3	318	-1.0	D	8	0.4
30/05/2018 02:50	13	2.2	351	0.5	E	5	0.0
30/05/2018 03:00	13	1.6	5	-1.0	D	11	0.2
30/05/2018 03:10	12	0.7	8	3.0	F	22	0.0
30/05/2018 03:20	12	1.8	319	-1.0	D	11	0.0
30/05/2018 03:30	12	1.8	286	0.5	E	12	1.0
30/05/2018 03:40	12	2.0	332	3.0	F	18	0.6
30/05/2018 03:50	12	2.1	345	0.5	E	13	0.4
30/05/2018 04:00	12	2.6	337	-1.0	D	7	0.0
30/05/2018 04:10	12	2.7	326	-1.0	D	7	0.0
30/05/2018 04:20	12	1.6	323	0.5	E	16	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
30/05/2018 04:30	12	2.2	311	-1.0	D	10	0.2
30/05/2018 04:40	12	2.1	311	-1.0	D	10	0.0
30/05/2018 04:50	12	2.3	310	-1.0	D	11	0.0
30/05/2018 05:00	12	1.7	316	0.5	E	13	0.0
30/05/2018 05:10	12	1.8	305	-1.0	D	10	0.0
30/05/2018 05:20	12	1.7	305	-1.0	D	10	0.0
30/05/2018 05:30	12	1.7	311	0.5	E	13	0.0
30/05/2018 05:40	12	1.9	306	0.5	E	12	0.0
30/05/2018 05:50	12	1.9	302	-1.0	D	11	0.0
30/05/2018 06:00	12	1.7	280	-1.6	C	12	0.0
30/05/2018 06:10	12	1.9	289	-1.8	B	17	0.0
30/05/2018 06:20	12	1.5	318	-1.6	C	12	0.0
30/05/2018 06:30	12	1.7	320	-1.0	D	11	0.0
30/05/2018 06:40	12	1.5	302	-1.6	C	13	0.0
30/05/2018 06:50	12	1.5	303	-1.0	D	10	0.0
30/05/2018 07:00	12	1.7	287	-1.6	C	14	0.0
30/05/2018 07:00	12	1.7	287	-1.6	C	14	0.0
30/05/2018 07:10	12	2.1	304	-1.0	D	10	0.0
30/05/2018 07:20	12	1.7	297	-1.6	C	13	0.0
30/05/2018 07:30	12	1.4	308	-1.8	B	18	0.0
30/05/2018 07:40	12	1.5	252	-1.6	C	12	0.2
30/05/2018 07:50	13	2.0	305	-1.0	D	10	0.0
30/05/2018 08:00	13	4.4	286	-1.0	D	8	0.0
30/05/2018 08:10	13	6.2	276	-1.0	D	8	0.0
30/05/2018 08:20	13	7.8	266	-1.0	D	7	0.2
30/05/2018 08:30	13	9.2	257	-1.0	D	7	0.0
30/05/2018 08:40	13	10.2	262	0.5	E	5	0.0
30/05/2018 08:50	13	8.9	254	0.5	E	6	0.0
30/05/2018 09:00	13	6.8	254	-1.0	D	11	0.0
30/05/2018 09:10	13	8.2	255	-1.0	D	8	0.0
30/05/2018 09:20	13	6.6	255	-1.0	D	7	0.0
30/05/2018 09:30	13	6.4	257	-1.0	D	7	0.0
30/05/2018 09:40	13	6.9	255	-1.0	D	11	0.0
30/05/2018 09:50	13	8.1	254	-1.0	D	8	0.0
30/05/2018 10:00	14	6.4	260	-1.0	D	9	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
30/05/2018 10:10	14	4.8	256	-1.0	D	9	0.0
30/05/2018 10:20	15	6.8	253	-1.0	D	7	0.0
30/05/2018 10:30	15	7.6	253	-1.0	D	8	0.0
30/05/2018 10:40	15	6.2	249	-1.6	C	12	0.0
30/05/2018 10:50	15	5.8	252	-1.0	D	9	0.0
30/05/2018 11:00	15	5.9	254	-1.6	C	12	0.0
30/05/2018 11:10	15	5.9	255	-1.0	D	11	0.0
30/05/2018 11:20	16	5.9	242	-1.0	D	10	0.0
30/05/2018 11:30	16	5.1	261	-1.6	C	16	0.0
30/05/2018 11:40	16	5.5	264	-1.6	C	13	0.0
30/05/2018 11:50	16	5.1	260	-1.6	C	12	0.0
30/05/2018 12:00	16	5.3	255	-1.6	C	13	0.0
30/05/2018 12:10	15	4.5	243	-1.6	C	12	0.0
30/05/2018 12:20	16	4.9	234	-1.6	C	12	0.0
30/05/2018 12:30	16	5.1	255	-1.8	B	17	0.0
30/05/2018 12:40	17	4.5	249	-1.6	C	12	0.0
30/05/2018 12:50	17	5.0	243	-1.6	C	15	0.0
30/05/2018 13:00	17	5.8	249	-1.6	C	14	0.0
30/05/2018 13:10	17	7.8	262	-1.0	D	8	0.0
30/05/2018 13:20	16	8.3	273	-1.0	D	9	0.0
30/05/2018 13:30	16	7.0	251	-1.0	D	9	0.0
30/05/2018 13:40	16	6.3	257	-1.0	D	11	0.0
30/05/2018 13:50	16	8.0	276	-1.0	D	7	0.0
30/05/2018 14:00	16	7.2	267	-1.0	D	8	0.0
30/05/2018 14:10	16	8.1	272	-1.0	D	10	0.0
30/05/2018 14:20	16	9.4	269	0.5	E	5	0.0
30/05/2018 14:30	16	7.0	264	-1.0	D	9	0.0
30/05/2018 14:40	16	6.0	260	-1.6	C	13	0.0
30/05/2018 14:50	16	8.7	262	-1.0	D	9	0.0
30/05/2018 15:00	15	7.0	254	-1.0	D	11	0.0
30/05/2018 15:10	15	7.0	248	-1.0	D	10	0.0
30/05/2018 15:20	15	7.3	252	-1.0	D	10	0.0
30/05/2018 15:30	15	7.1	266	-1.0	D	9	0.0
30/05/2018 15:40	15	7.1	258	-1.0	D	7	0.0
30/05/2018 15:50	15	5.6	261	-1.0	D	8	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
30/05/2018 16:00	15	6.1	259	0.5	E	6	0.0
30/05/2018 16:10	15	5.9	259	-1.0	D	7	0.0
30/05/2018 16:20	15	5.5	259	-1.0	D	9	0.0
30/05/2018 16:30	14	4.9	260	0.5	E	6	0.0
30/05/2018 16:40	14	4.3	255	-1.0	D	7	0.0
30/05/2018 16:50	14	4.5	253	-1.0	D	9	0.0
30/05/2018 17:00	13	5.3	257	-1.0	D	7	0.0
30/05/2018 17:10	13	4.7	257	-1.0	D	9	0.0
30/05/2018 17:20	13	4.7	256	0.5	E	6	0.0
30/05/2018 17:30	13	4.9	257	0.5	E	5	0.0
30/05/2018 17:40	13	4.9	256	-1.0	D	8	0.0
30/05/2018 17:50	12	3.5	252	0.5	E	5	0.0
30/05/2018 18:00	12	3.9	258	0.5	E	6	0.0
30/05/2018 18:00	12	3.9	258	0.5	E	6	0.0
30/05/2018 18:10	12	3.5	257	0.5	E	5	0.0
30/05/2018 18:20	12	3.1	258	0.5	E	5	0.0
30/05/2018 18:30	12	3.2	261	0.5	E	5	0.0
30/05/2018 18:40	12	3.1	260	0.5	E	5	0.0
30/05/2018 18:50	11	2.9	258	0.5	E	4	0.0
30/05/2018 19:00	11	2.7	255	-1.0	D	8	0.0
30/05/2018 19:10	11	2.1	242	-1.0	D	11	0.0
30/05/2018 19:20	11	3.3	242	-1.0	D	11	0.0
30/05/2018 19:30	11	2.4	238	-1.0	D	11	0.0
30/05/2018 19:40	11	2.3	258	-1.0	D	9	0.0
30/05/2018 19:50	11	1.4	256	3.0	F	19	0.0
30/05/2018 20:00	11	1.9	259	3.0	F	17	0.0
30/05/2018 20:10	10	2.1	263	-1.0	D	11	0.0
30/05/2018 20:20	10	2.5	259	-1.0	D	13	0.0
30/05/2018 20:30	10	2.3	243	0.5	E	13	0.0
30/05/2018 20:40	10	3.6	237	-1.0	D	10	0.0
30/05/2018 20:50	10	3.9	244	-1.0	D	11	0.0
30/05/2018 21:00	10	3.7	242	-1.0	D	8	0.0
30/05/2018 21:10	10	3.6	238	-1.0	D	10	0.0
30/05/2018 21:20	10	3.3	249	-1.0	D	10	0.0
30/05/2018 21:30	10	2.9	251	-1.0	D	12	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
30/05/2018 21:40	10	1.6	271	3.0	F	20	0.0
30/05/2018 21:50	10	2.1	284	0.5	E	15	0.0
30/05/2018 22:00	9	2.4	295	-1.0	D	9	0.0
30/05/2018 22:00	9	2.4	295	-1.0	D	9	0.0
30/05/2018 22:10	9	2.2	313	-1.0	D	8	0.0
30/05/2018 22:20	9	1.9	336	-1.0	D	11	0.0
30/05/2018 22:30	9	2.2	324	-1.0	D	10	0.0
30/05/2018 22:40	9	1.6	332	3.0	F	19	0.0
30/05/2018 22:50	9	1.8	320	3.0	F	17	0.0
30/05/2018 23:00	9	1.9	318	3.0	F	20	0.0
30/05/2018 23:10	9	1.4	301	3.0	F	24	0.0
30/05/2018 23:20	9	1.6	298	0.5	E	16	0.0
30/05/2018 23:30	9	2.6	302	-1.0	D	10	0.0
30/05/2018 23:40	9	2.6	307	-1.0	D	9	0.0
30/05/2018 23:50	9	2.3	315	-1.0	D	11	0.0
31/05/2018 00:00	9	2.5	318	-1.0	D	14	0.0
31/05/2018 00:10	9	1.9	316	0.5	E	14	0.0
31/05/2018 00:20	8	2.4	333	-1.0	D	11	0.0
31/05/2018 00:30	8	2.1	332	-1.0	D	9	0.0
31/05/2018 00:40	8	2.0	308	0.5	E	13	0.0
31/05/2018 00:50	8	2.1	301	0.5	E	15	0.0
31/05/2018 01:00	8	2.0	319	3.0	F	26	0.0
31/05/2018 01:10	8	2.2	328	0.5	E	15	0.0
31/05/2018 01:20	8	2.0	319	0.5	E	12	0.0
31/05/2018 01:30	8	1.8	335	0.5	E	14	0.0
31/05/2018 01:40	8	0.5	22	3.0	F	42	0.0
31/05/2018 01:50	7	2.7	349	-1.0	D	12	0.0
31/05/2018 02:00	8	3.3	355	-1.0	D	8	0.0
31/05/2018 02:10	7	3.4	349	-1.0	D	8	0.0
31/05/2018 02:20	7	2.5	329	-1.0	D	7	0.0
31/05/2018 02:30	7	2.8	325	-1.0	D	7	0.0
31/05/2018 02:40	7	2.7	334	-1.0	D	7	0.0
31/05/2018 02:50	7	2.2	324	-1.0	D	10	0.0
31/05/2018 03:00	6	2.2	333	-1.0	D	11	0.0
31/05/2018 03:10	6	2.3	343	-1.0	D	8	0.0

End Date and Time	Temperature °C	Wind Speed m/s	Wind Direction °MN	VTG °C/100m	Stability Class	Sigma Theta	Total Rainfall mm
31/05/2018 03:20	6	2.4	327	-1.0	D	11	0.0
31/05/2018 03:30	6	2.7	334	-1.0	D	8	0.0
31/05/2018 03:40	6	2.6	320	-1.0	D	9	0.0
31/05/2018 03:50	6	2.3	345	-1.0	D	7	0.0
31/05/2018 04:00	6	2.4	357	-1.0	D	10	0.0
31/05/2018 04:10	6	3.0	338	-1.0	D	7	0.0
31/05/2018 04:20	6	2.8	328	-1.0	D	9	0.0
31/05/2018 04:30	6	2.2	306	-1.0	D	10	0.0
31/05/2018 04:40	7	2.3	318	3.0	F	18	0.0
31/05/2018 04:50	7	2.4	318	-1.0	D	15	0.0
31/05/2018 05:00	7	2.6	340	-1.0	D	12	0.0
31/05/2018 05:10	7	2.1	324	0.5	E	12	0.0
31/05/2018 05:20	7	3.1	343	0.5	E	6	0.0
31/05/2018 05:30	7	3.0	345	-1.0	D	7	0.0
31/05/2018 05:40	7	2.8	338	-1.0	D	8	0.0
31/05/2018 05:50	7	2.9	335	-1.0	D	8	0.0
31/05/2018 06:00	7	2.8	325	-1.6	C	12	0.0
31/05/2018 06:10	7	2.7	322	-1.0	D	11	0.0
31/05/2018 06:20	7	2.3	338	-1.0	D	10	0.0
31/05/2018 06:30	7	2.1	321	-1.6	C	13	0.0
31/05/2018 06:40	7	3.5	329	0.5	E	6	0.0
31/05/2018 06:50	7	3.6	339	0.5	E	6	0.0
31/05/2018 07:00	7	2.6	329	-1.0	D	9	0.0

Notes:

1. Atmospheric data is sourced from the MTP weather station using logged meteorological data.