

Mount Pleasant Operation Monthly Environmental Monitoring Report

December 2021

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 operations, respectively.

The purpose of this report is to provide a monthly update of monitoring data in accordance with the requirements of NSW Environmental Protection Licence (EPL) 20850, Section 66(6) of the *Protection of the Environment Operations Act 1997* (POEO Act) and the MPO Development Approval (DA 92/97).

Table 1-1 – Mount Pleasant Operation

Name of Operation	Mount Pleasant Operation
Name of Licensee	MACH Energy Australia Pty Ltd
Environmental Protection Licence	20850
Project Approval	DA 92/97
Reporting Period Start Date	1 December 2021
Reporting Period End Date	31 December 2021
Date All Data Received	7 February 2022

Links to two key regulatory documents are provided here:

- [MACH Energy Environment Protection Licence EPL 20850; and](#)
- [Mount Pleasant Operation Development Application Approval DA 92/97.](#)

2. Monitoring Requirements

The MPO EPL 20850 specifically requires the monitoring of:

- 2 x Palas Fidas Air Quality Monitoring 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).

All monitoring is undertaken by suitably qualified and experienced person(s).

The MPO Environmental Monitoring Network is shown in the following figures:

- **Figure 2-1** shows MPO attended noise monitoring locations and Noise Assessment Groups (NAGs);
- **Figure 2-2** shows the MPO Air Quality Monitoring network;
- **Figure 2-3** shows the MPO Blast Monitoring Locations;
- **Figure 2-4** shows the MPO Groundwater Monitoring network; and
- **Figure 2-5** shows the MPO Surface Water Monitoring network.

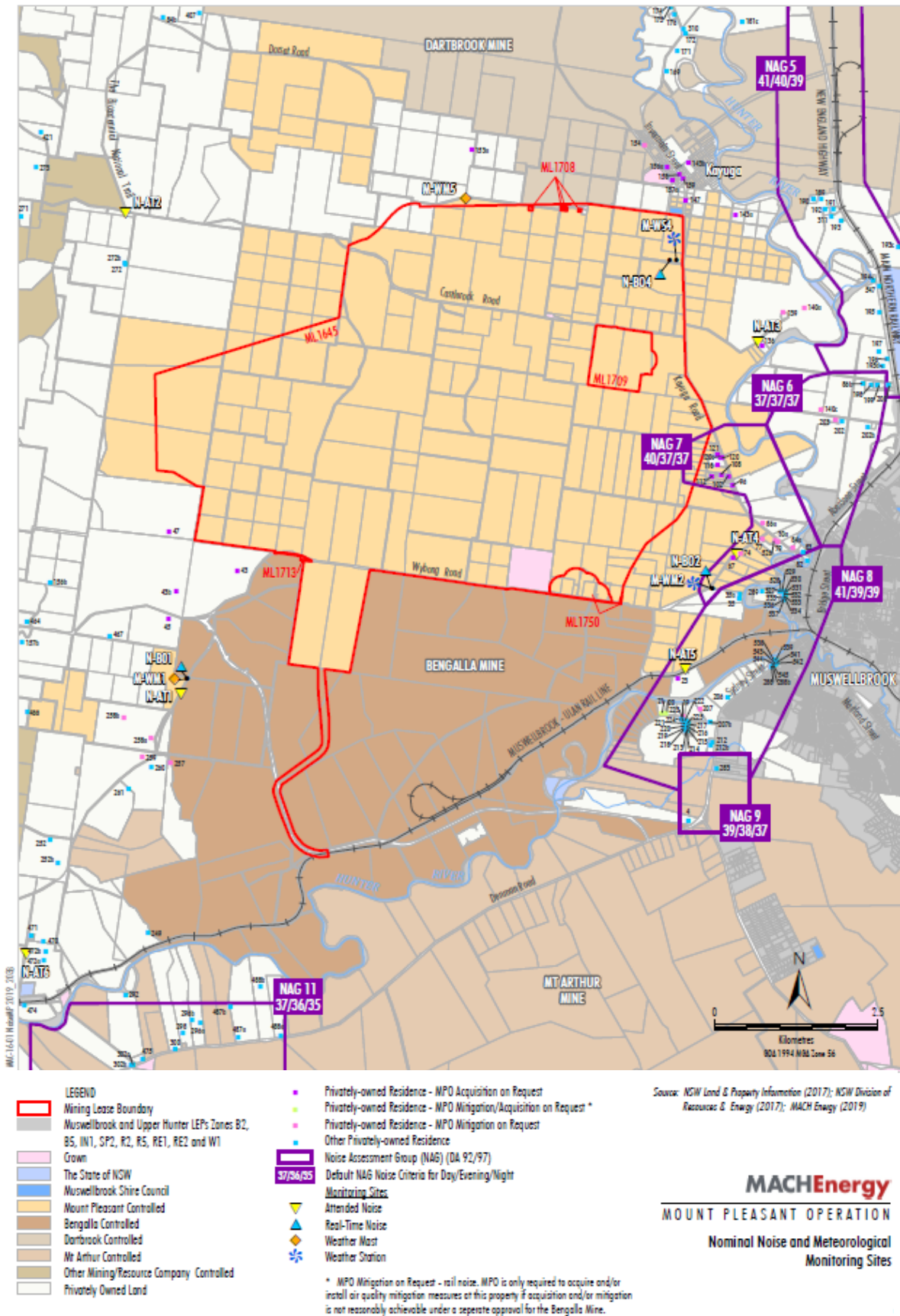
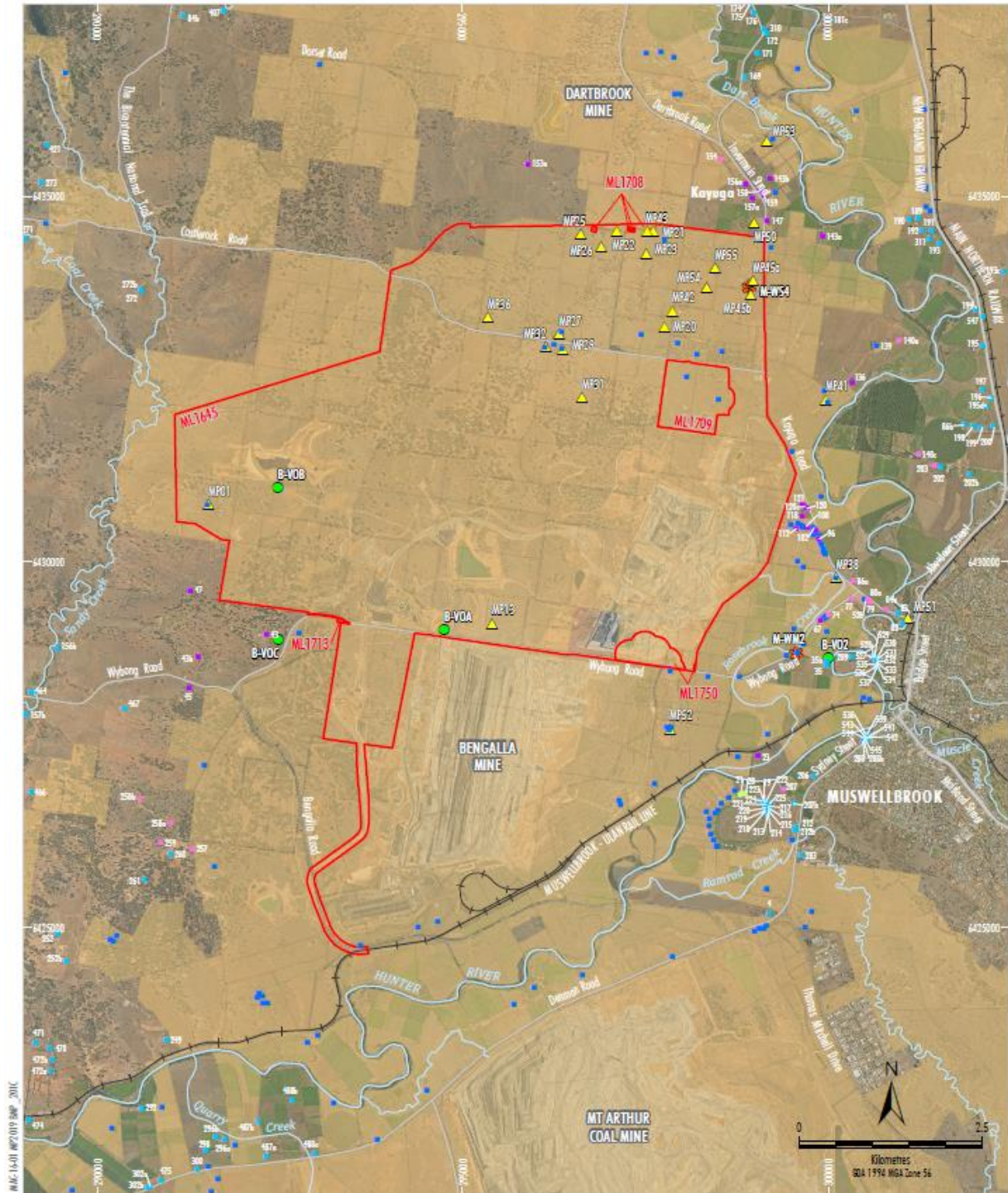


Figure 2-1 – MPO Attended Noise Monitoring Assessment Groups and Locations



Figure 2-2 – MPO Air Quality and Meteorological Monitoring Network



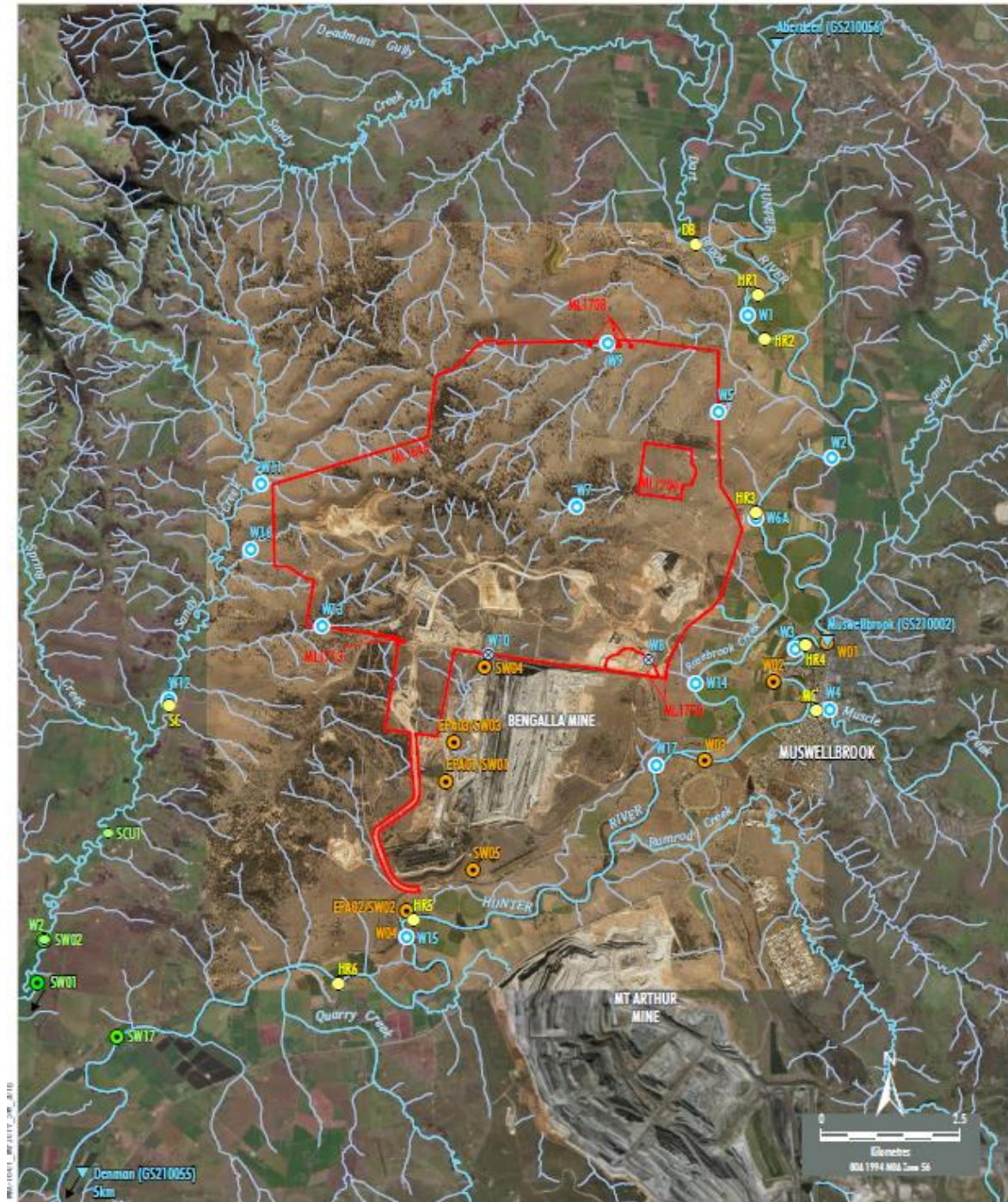
- LEGEND**
- Mining Lease Boundary
 - Mine-owned Land
 - Mine-owned Dwelling
 - Privately-owned Residence - MPO Acquisition on Request
 - Privately-owned Residence - MPO Mitigation/Acquisition on Request *
 - Privately-owned Residence - MPO Mitigation on Request
 - Other Privately-owned Residence
 - Blast Monitoring Site (Vibration/Overpressure)
 - ★ Weather Station
 - ▲ Historic Heritage Site Subject to Blast Criteria

* MPO Mitigation on Request - rail noise. MPO is only required to acquire and/or install air quality mitigation measures at this property if acquisition and/or mitigation is not reasonably achievable under a separate approval for the Bengalla Mine.

Source: MACH Energy (2020); NSW Spatial Services (2019)
Orthophoto: MACH Energy (Jan 2020)

MACH Energy
MOUNT PLEASANT OPERATION
Blast Monitoring Locations

Figure 2-3 – MPO Blast Monitoring Locations



- LEGEND**
- Mining Lease Boundary
 - ▼ DPI Water Gauging Station
 - Mt Pleasant Monitoring
 - Surface Water Monitoring Site
 - Historical Surface Water Monitoring Site
 - Stream Health Monitoring Site
 - Mangoola Monitoring
 - Surface Water Monitoring Site
 - Stream Health Monitoring Site
 - Bengalla Monitoring
 - Surface Water Monitoring Site

Source: NSW Land & Property Information (2019); NSW Division of Resources & Energy (2019); NSW Department of Primary Industries - Water (2016); Bengalla Mining Company (2015); Mangool Coal Operations Pty Ltd (2014)
 Orthophoto: MACH (Jul 2018); Esri, DigitalGlobe (2018)

MACH Energy
 MOUNT PLEASANT OPERATION
 Surface Water and Stream Health
 Monitoring Sites

Figure 2-5 – MPO Surface Water Monitoring Network

3. Meteorological Monitoring

Weather data is measured continuously at the Kayuga Road (M-WS4) and the Wybong Road (M-WS2) meteorological stations. In addition to air quality parameters, the weather stations measure wind speed and direction (using the sigma theta method), temperature (at 2 m and 10 m), solar radiation, relative humidity, rainfall, atmospheric pressure.

The majority of meteorological data was captured at M-WS2 (>96.5%) during December 2021 (the monitoring period), with the exception of solar radiation and wind parameters (83.1% and 20.7%). The majority of meteorological data was captured at M-WS4 (>99.3%) during the monitoring period.

Throughout December 2021, there was 44.6mm and 127.4mm of rainfall recorded at M-WS2 and M-WS4, respectively.

4. Dust Depositional Monitoring

4.1 Methodology

Dust deposition was monitored according to the OEH's Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DECC 2007), which references Australian Standard (AS)/New Zealand Standard (NZS) 3580.10.1:2016 Methods for Sampling and Analysis of Ambient Air: Determination of particulate matter – Deposited matter – Gravimetric Method. The dust deposition monitoring network comprises of 13 dust deposition gauges (DDG). Details of the monitoring locations are shown in **Figure 2-2**.

DDG samples can be contaminated by a variety of means, notably by the presence of insects and bird droppings. Results for contaminated gauges were not included in the calculation of the annual averages as this would result in skewed or misleading results for the purpose of dust deposition assessment. The Australian Standard does not provide criteria for the determination of contamination of a DDG. A gauge sample is determined by AECOM to be contaminated only after reference to field observation sheets, historical monitoring location data, laboratory notes and results, prevailing atmospheric conditions and feedback from field technicians. For example, a gauge sample with a statistically abnormally high insoluble solids result, a low ash residue result (indicating a high level of organic matter) and field notation that bird droppings or insects were present is likely to be considered contaminated.

4.2 Results

The dust deposition exposure period for gauges commenced on 15 November 2021. Sample collection was undertaken on 16 December 2021 by AECOM with sample analysis performed by ALS NATA accredited laboratory. Results are summarised in **Table 4-1**. Annual rolling averages for December 2021 have been provided as an indication of performance between December 2020 – December 2021 and does not represent annual average results for 2021 as per Schedule 3, Condition 20 of DA 92/97.

Table 4-1: Dust Depositional Results – December 2021

Location	YTD Insoluble Solids (g/m ² .month)	Insoluble Solids Annual Rolling Average (g/m ² .month)
D1	1.9	2.4
D3a	1.2	1.6
D4	*	1.6
D5	2.9	2.9
D6	2.3	2.7
D7b ¹	8.1	7.9
D8	2.3	3.5
D9a	1.7	1.6
D10	1.0	1.0
D11	1.6	1.7
D12	1.1	0.7
D13	0.9	1.5
D14	2.2	2.9
Criterion	-	4

Notes:

Results in **bold** indicate an elevated measurement of adopted assessment criteria

**Indicates result unavailable due to contaminated depositional dust gauges for YTD

*** annual rolling average not available as new site location

¹Site D7b is located within close proximity to the northern boundary of a neighbouring mining company's main pit and thus is influenced by activities there. This site will continue to be monitored, however will not be used to assess compliance or to represent residential receivers in the area.

* No data due to dust gauge removed during construction activities

Contaminated results, as described in Section 4.1, are not included in the 12 month rolling average. Site D7b is located within close proximity to the northern boundary of a neighbouring mining operation and thus can be influenced by this site. D7b will continue to be monitored, however will not be used to assess compliance or to represent residential receivers in the area. Furthermore, there are no privately-owned receivers in the vicinity of D8 and D14. Whilst these sites do not represent residence(s) on privately-owned land, they will continue to be monitored in accordance with the MPO Air Quality and Greenhouse Gas Management Plan (MACH Energy, 2019).

Field notes from the December 2021 sampling event noted that all gauges contained insects. Dust gauge D4 was unable to be collected due to unsafe access. There was insufficient

evidence of contamination in all other depositional dust gauges to justify any being deemed contaminated. All December 2021 insoluble solid results were included in the annual rolling average calculations.

Figure 4-1 compares the monthly insoluble solids results to the annual averages for each dust gauge and the assessment criterion.

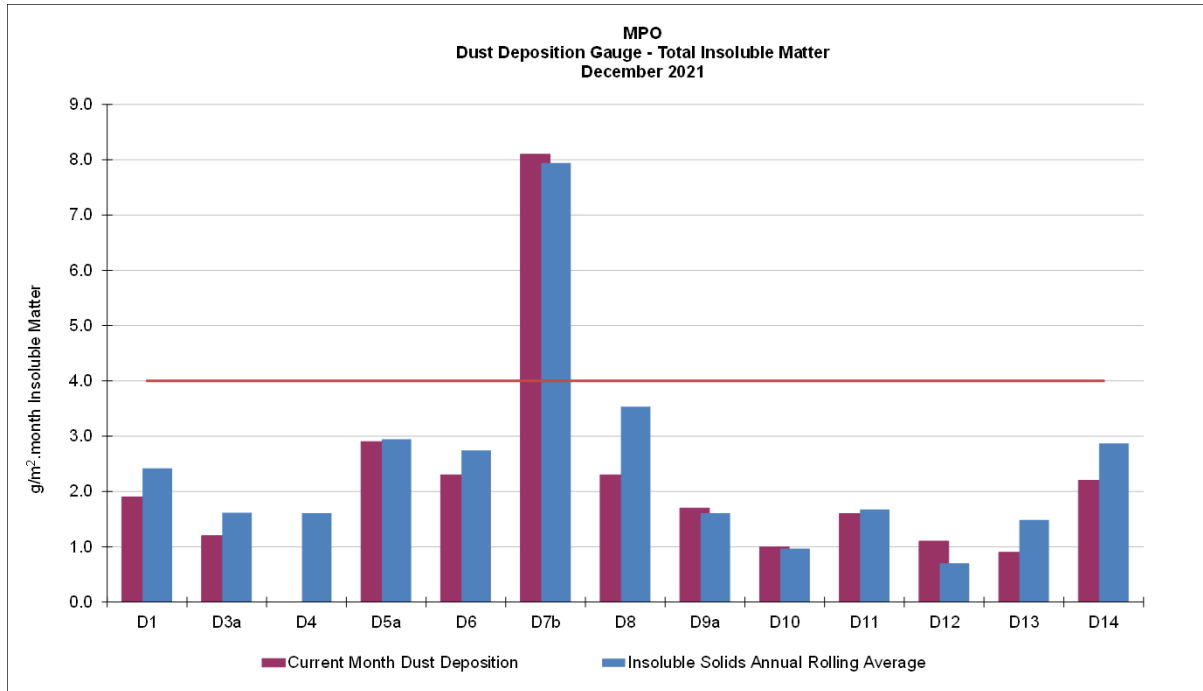


Figure 4-1: MPO Dust Deposition Monthly Results and Annual Rolling Average – December 2021

5. Total Suspended Particulates

All High Volume Air Samplers (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.

Three TSP HVAS units are included in the MPO air quality monitoring network and are displayed in **Table 5-1** below. These units were commissioned in March 2017.

Table 5-1 Total Suspended Particulate Monitoring Sites

ID	Description
A-PF2	Reilly's
M-WS4	Kayuga Road Met Station
A-PF5	Athlone

5.1 Assessment Criteria

TSP is assessed against the guidelines defined in the EPA Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (EPA 2016) and Project Approval DA 92/97. The DA 92/97 specifies an annual average project contribution plus background criterion of 90 µg/m³.

5.2 Results

In December 2021 sample collection was undertaken by AECOM with sample analysis performed by ALS NATA accredited laboratory. TSP results for the monitoring period are provided in **Table 5-2**. Annual rolling averages for December 2021 have been provided as an indication of performance between December 2020 – December 2021 and do not represent annual average results for 2021 as per Schedule 3, Condition 20 of DA 92/97.

Table 5-2 Total Suspended Particulate Monitoring Data – December 2021

Run Date	Assessment Criterion	TSP µg/m ³		
		HVAS A-PF2	HVAS M-WS4	HVAS A-PF5
5/12/2021	-	44.6	55.9	31.3
11/12/2021	-	32.6	26.6	37.6
17/12/2021	-	49.4	54.9	45.5
23/12/2021	-	46.6	60.3	65.6
29/12/2021	-	29.4	46.6	20.9
Monthly Mean	-	40.5	48.9	40.2
Annual Rolling Average	90	49	30	28

Note: Results in **bold** indicate an elevated reading

5.3 Discussion

For the reporting period, the annual rolling average TSP data at all sites was below the annual average criterion of 90 µg/m³.

6. Real Time Air Quality Monitoring

Continuous particulate matter less than 10 µm (PM₁₀) and particulate matter less than 2.5 µm (PM_{2.5}) monitoring was conducted by three Palas Fidas units (one utilised for management only) at MPO during December 2021.

The EPA identification numbers 1 and 2 refer to Palas Fidas units installed on Wybong Road (A-PF2) and Dorset Road (A-PF5), respectively. In addition, a third unit (A-PF4) is installed on Kayuga Road with data used for management purposes only.

Real time PM₁₀ and PM_{2.5} 12-month rolling averages for December 2021 have been provided in Section 6.2 and 6.4 respectively, as an indication of performance between December 2020 – December 2021 and do not represent annual average results for 2021 as per Schedule 3, Condition 20 of DA 92/97.

6.1 PM₁₀ Results – 24 hour rolling average

There were no elevated PM₁₀ measurements reported throughout December 2021. The Muswellbrook NW monitor was operational during all days of December 2021. Real time PM₁₀ 24 hour rolling average results for December 2021 are presented in **Table 6-1**.

Table 6-1: MPO Palas Fidas PM₁₀ Data – December 2021

Date	A-PF2/EPA ID 1	A-PF4	A-PF5/EPA ID 2	Muswellbrook NW	Muswellbrook NW 24 Hour Average Limit (µg/m ³)	A-PF2, A-PF4, A-PF5 24 Hour Average Limit (µg/m ³)
	24 hour Average Result					
1/12/2021	11	10	-	11	44	50
2/12/2021	10	8	-	10.5	44	50
3/12/2021	20	14	-	19.8	44	50
4/12/2021	24	24	-	27.9	44	50
5/12/2021	17	12	-	18.2	44	50
6/12/2021	18	12	-	18.8	44	50
7/12/2021	-	11	9	12.6	44	50
8/12/2021	-	10	8	11	44	50
9/12/2021	11	9	8	8.6	44	50
10/12/2021	17	10	8	14.5	44	50
11/12/2021	11	10	11	10.6	44	50
12/12/2021	14	10	12	14.3	44	50
13/12/2021	23	17	21	23.5	44	50
14/12/2021	22	17	19	24	44	50
15/12/2021	26	20	22	22.7	44	50
16/12/2021	25	18	18	25.2	44	50
17/12/2021	21	14	15	20.9	44	50
18/12/2021	23	15	15	19.8	44	50
19/12/2021	24	13	-	21.5	44	50
20/12/2021	26	16	-	21.3	44	50
21/12/2021	25	18	19	21.5	44	50

22/12/2021	18	12	12	15.7	44	50
23/12/2021	22	19	19	19.6	44	50
24/12/2021	18	15	16	17	44	50
25/12/2021	16	12	15	15	44	50
26/12/2021	13	10	12	11.2	44	50
27/12/2021	12	9	10	9.6	44	50
28/12/2021	11	8	10	9.1	44	50
29/12/2021	12	9	11	10.4	44	50
30/12/2021	13	10	12	13.3	44	50
31/12/2021	16	11	17	14.6	44	50

Notes:

Results in bold indicate elevated readings during adverse weather conditions.

Results with "-" indicate dates where data was affected by maintenance or servicing (scheduled and unscheduled)

Figure 6-1 below shows the results of real-time PM₁₀ 24 hour rolling average results at MPO air quality monitoring sites December 2021.

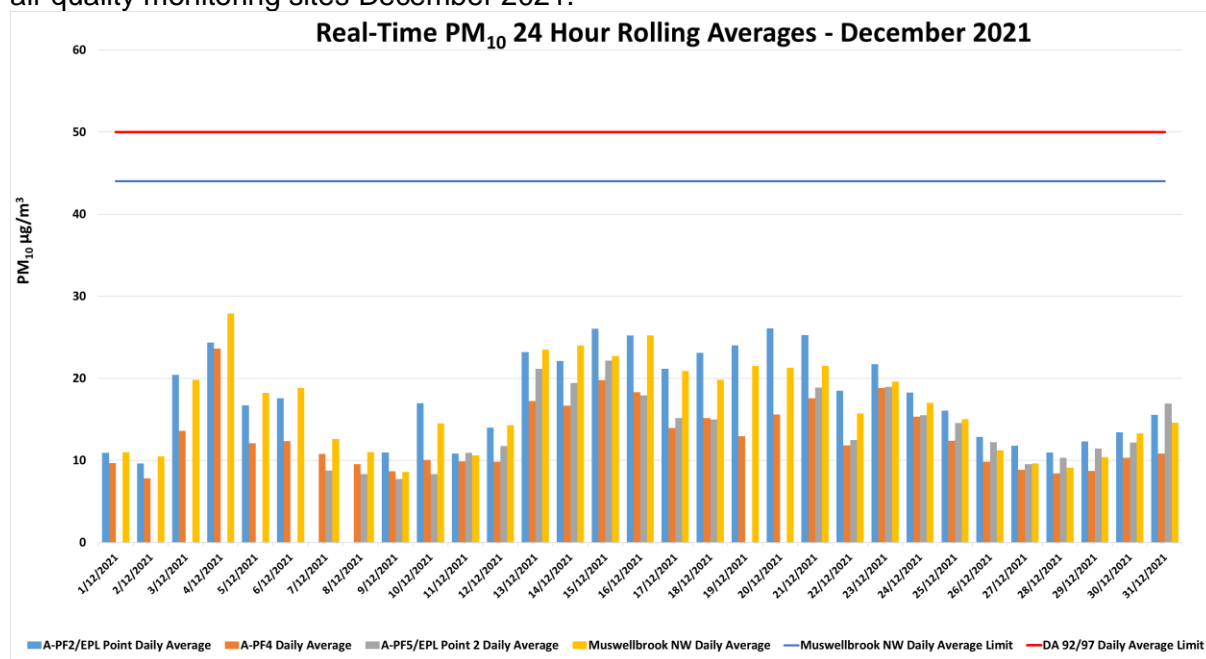


Figure 6-1: Real-time PM₁₀ 24 hour rolling average results for December 2021.

6.2 PM₁₀ Results – Annual rolling average

There were no elevated PM₁₀ measurements reported at MPO for the December 2021 annual rolling average. Real time PM₁₀ annual rolling averages for December 2021 are presented in **Figure 6-2** below.

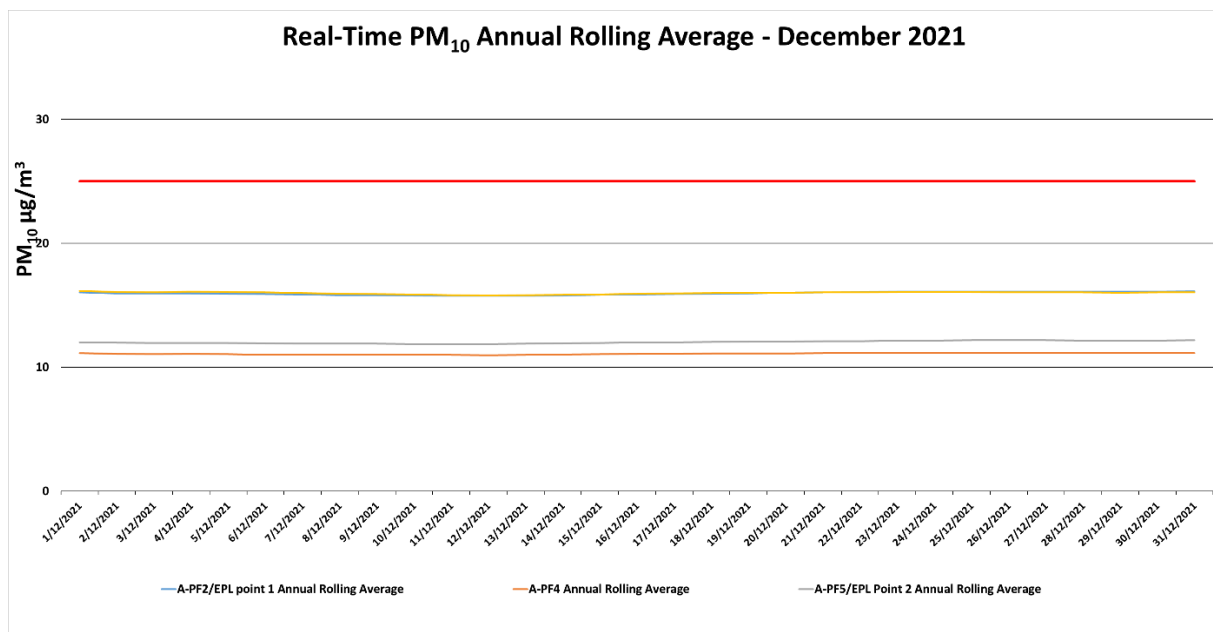


Figure 6-2: Real-time PM₁₀ Annual Rolling average results for December 2021.

6.3 PM_{2.5} Results – 24 hour rolling average

There were no elevated PM_{2.5} measurements reported throughout December 2021. Real time PM_{2.5} 24 hour rolling average results for December 2021 are presented in **Table 6-2**.

Table 6-2: MPO Palas Fidas PM_{2.5} Data – December 2021

Date	A-PF2/EPA ID 1	A-PF4	A-PF5/EPA ID 2	A-PF2, A-PF4, A-PF5 24 Hour Average Limit (µg/m ³)
	24 hour Average Result			
1/12/2021	4	5	-	25
2/12/2021	3	3	-	25
3/12/2021	7	6	-	25
4/12/2021	11	12	-	25
5/12/2021	6	5	-	25
6/12/2021	5	5	-	25
7/12/2021	-	5	4	25
8/12/2021	-	4	4	25
9/12/2021	4	4	3	25
10/12/2021	4	3	3	25
11/12/2021	3	4	4	25
12/12/2021	5	4	4	25
13/12/2021	6	6	6	25
14/12/2021	7	6	6	25
15/12/2021	6	5	6	25
16/12/2021	8	7	7	25
17/12/2021	7	6	6	25
18/12/2021	7	6	6	25
19/12/2021	6	5	-	25

20/12/2021	7	6	-	25
21/12/2021	8	7	8	25
22/12/2021	6	5	6	25
23/12/2021	9	8	8	25
24/12/2021	8	8	8	25
25/12/2021	8	6	8	25
26/12/2021	5	4	5	25
27/12/2021	5	4	4	25
28/12/2021	4	4	4	25
29/12/2021	4	4	4	25
30/12/2021	4	4	4	25
31/12/2021	4	4	5	25

Notes:

Results in **bold** indicate elevated readings during adverse weather conditions.

Results with "-" indicate dates where data was affected by maintenance or servicing (scheduled and unscheduled)

Real time PM_{2.5} 24 hour average results for December 2021 are presented in **Figure 6-3** below.

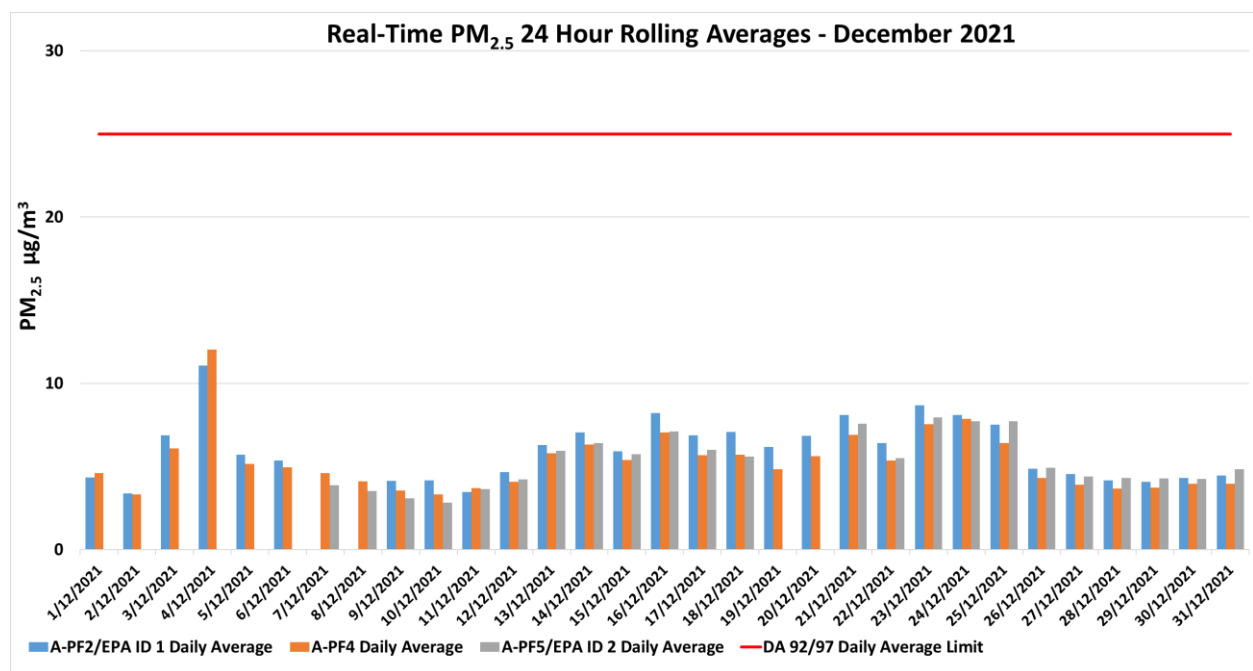


Figure 6-3: Real-time PM_{2.5} 24 hour rolling average results for December 2021.

6.4 PM_{2.5} Results - Annual rolling average

There were no elevated PM_{2.5} measurements reported at MPO for the December 2021 annual rolling average. Real time PM_{2.5} annual rolling averages for December 2021 are presented in **Figure 6-4** below.

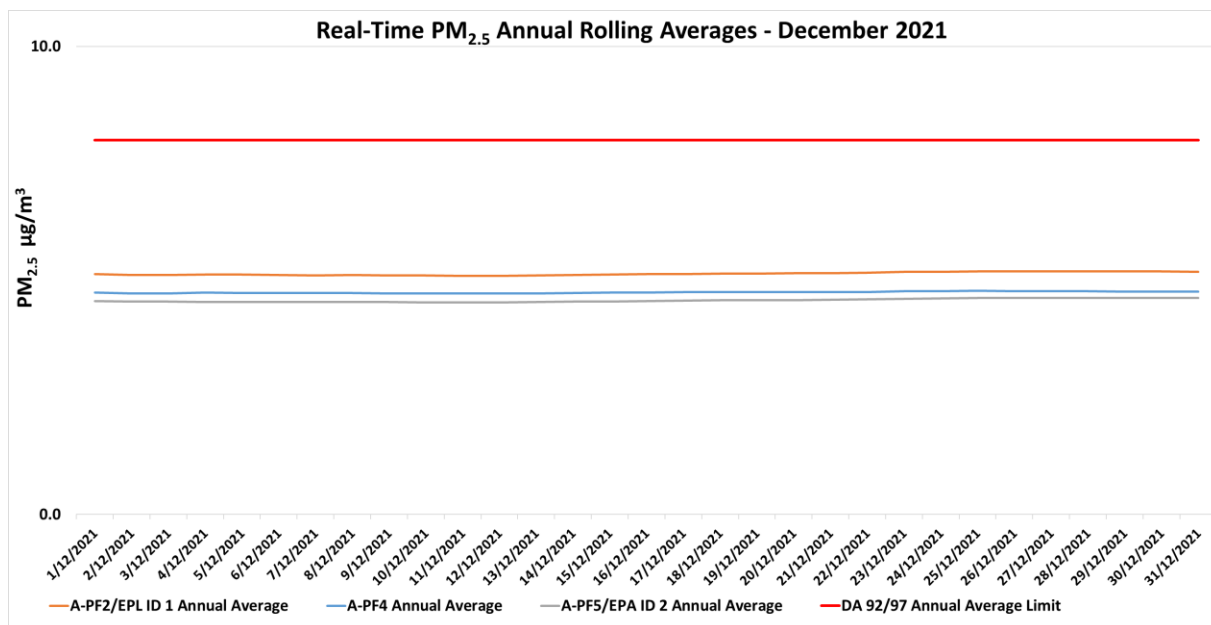


Figure 6-4: Real-time PM_{2.5} Annual Rolling average results for December 2021.

7. Surface Water Monitoring

7.1 Methodology

Surface water quality is monitored at 15 sites on a monthly basis, with additional monitoring conducted if triggered by a rain event. A more comprehensive suite of analysis is performed at these sites on a quarterly basis.

7.2 Assessment Criteria

Surface waters were assessed as per the MPO Water Management Plan (MACH Energy, 2019) in accordance with site specific trigger values that have been developed using the ANZECC (2000) guidelines for sites that contain a minimum of two years of monthly data. Sites with insufficient data are assessed on default trigger values adopted from ANZECC (2000) guidelines.

7.3 Results

Surface water event monitoring was conducted by AECOM on 1 December 2021. Laboratory analysis was performed by ALS NATA accredited laboratory. Monthly monitoring results for pH, EC, TSS and Total Dissolved Solids (TDS) are presented in **Table 7-1**. Additional rain event surface water monitoring was conducted by AECOM on 9th of December 2021 with results shown in **Table 7-2**.

Table 7-1 – MPO Monthly Surface Water Monitoring Results – 1 December 2021

Station	pH	Electrical Conductivity (EC) (µs/cm) ¹	Total Suspended Solids (TSS) (mg/L)	Total Dissolved Solids (TDS) (mg/L)
W1	7.9	400	250	42
W2	^	^	^	^
W3	7.8	360	250	68

Station	pH	Electrical Conductivity (EC) (µs/cm) ¹	Total Suspended Solids (TSS) (mg/L)	Total Dissolved Solids (TDS) (mg/L)
W4	7.4	320	247	24
W5	6.6	80	47**	20
W6A	7.8	360	244	90
W7	^	^	^	^
W9	7.2	130	72**	16
W11	^	^	^	^
W12	7.8	410	314	165
W13	7.8	310	178**	52
W14	6.9	180	100**	57
W15	7.7	350	240	85
W16	8.1	830	523	90
W17	7.8	340	250	84

Notes:

Results in **bold** indicate elevated reading of adopted assessment criteria.

*Dry or insufficient water to sample.

** Calculated result due to interference from fine colloidal material

^ Indicates no safe access due to wet weather conditions

¹ Results have been rounded in accordance with the In-house method Q4AN(EV)-332-WI3 (pH) and In-house method Q4AN(EV)-332-WI2 (EC).

Table 7-2 – MPO Rain Event Surface Water Monitoring Results – 9 December 2021

Station	pH	Electrical Conductivity (EC) (µs/cm) ¹	Total Suspended Solids (TSS) (mg/L)	Total Dissolved Solids (TDS) (mg/L)
W1	7.8	260	146**	367
W2	^	^	^	^
W3	7.7	260	146**	254
W4	7.2	170	97**	55
W5	7.1	70	40**	33
W6A	7.6	190	110**	874
W7	^	^	^	^
W9	7.4	120	71**	55
W11	^	^	^	^
W12	7.8	310	176**	478
W13	7.7	170	95**	44
W14	7.0	100	56**	83
W15	7.6	200	116**	83
W16	^	^	^	^
W17	^	^	^	^

Notes:

Results in **bold** indicate exceedances of adopted assessment criteria.

* Dry or insufficient water to sample

[^] Unsafe access

^{**} Calculated result due to interference from fine colloidal material

¹ Results have been rounded in accordance with the In-house method Q4AN(EV)-332-WI3 (pH) and In-house method Q4AN(EV)-332-WI2 (EC).

During the December 1 2021 monthly monitoring, three of the fifteen monitoring location were found to be unsafe access. All sites were within or below their respective pH and EC trigger levels. Site W6A and W17 exceeded their respective TSS trigger levels. During 9 December 2021 monitoring event five of eighteen monitoring locations was found to be unsafe to access. All sites were within or below their respective pH and EC trigger levels. Site W6A was above its TSS trigger level. An investigation will be triggered if elevated measurements occur for three consecutive sampling events in accordance MPO Water Management Plan (MACH Energy, 2019). All other sites were below or inside the assessment trigger ranges.

8. Groundwater Monitoring

Quarterly groundwater monitoring was not undertaken in December. The next quarterly monitoring event is scheduled for February 2022.

9. Noise Monitoring

Attended noise monitoring was undertaken during the night period of 6/7 December 2021 at 6 monitoring locations as per the MPO Noise Management Plan (MACH Energy, 2019) in accordance with DA 92/97 and EPL 20850.

9.1 Results

The results for night time attended noise monitoring for noise generated by MPO in December 2021 against noise criteria is shown in **Table 9-1**; **Table 9-2**; and **Table 9-3**.

Table 9-1 – $L_{A1,1min}$ Generated by MPO: Attended Night Monitoring – 6/7 December 2021

Location	Start Date and Time	Wind Speed m/s	Stability Class	Criterion dB	Criterion Applies ¹	MPO Only $L_{A1,1min}$ dB ^{2,4}	Exceedance dB ^{3,4}
N-AT1	06/12/2021 23:57	1.6	E	45	Yes	IA	Nil
N-AT2	06/12/2021 22:01	3.5	D	45	No	32	NA
N-AT3	06/12/2021 22:33	2.6	D	45	Yes	IA	Nil
N-AT4	07/12/2021 02:26	0.8	F	45	Yes	IA	Nil
N-AT5	07/12/2021 01:15	1.8	E	45	Yes	IA	Nil
N-AT6	06/12/2021 22:39	2.0	E	45	Yes	IA	Nil

Notes:

- As per Condition L2.3 of EPL 20850, noise emission limits 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;
- Estimated or measured $L_{A1,1minute}$ attributed to MPO;
- NA in exceedance column means meteorological conditions outside those specified in Condition L2.3 of EPL 20850 and thus criterion is not applicable; and
- Bold results indicate exceedance of criteria.
- IA indicates inaudible noise attributed to MPO.
- Remeasure

Table 9-2 – L_{Aeq,15min} Generated by MPO: Attended Night Monitoring – 6/7 December 2021

Location	Start Date and Time	Wind Speed m/s	Stability Class	Criterion dB	Criterion Applies ¹	MPO Only L _{Aeq} dB ^{2,4}	Exceedance dB ^{3,4}
N-AT1	06/12/2021 23:57	1.6	E	43	Yes	IA	Nil
N-AT2	06/12/2021 22:01	3.5	D	36	No	27	NA
N-AT3	06/12/2021 22:33	2.6	D	41	Yes	IA	Nil
N-AT4	07/12/2021 02:26	0.8	F	42	Yes	IA	Nil
N-AT5	07/12/2021 01:15	1.8	E	40	Yes	IA	Nil
N-AT6	06/12/2021 22:39	2.0	E	35	Yes	IA	Nil

Notes:

- As per Condition L2.3 of EPL 20850, noise emission limits 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;
- Estimated or measured L_{Aeq,15minute} attributed to MPO;
- NA in exceedance column means meteorological conditions outside those specified in Condition L2.3 of EPL 20850 and thus criterion is not applicable; and
- Bold results indicate exceedance of criteria.
- Remeasure

Table 9-3 – L_{Aeq,period} Cumulative Noise: Attended Night Monitoring – 6/7 December 2021

Location	Start Date and Time	Cumulative Noise Criterion L _{Aeq} dB	Measured Mining Only L _{Aeq,period} dB ^{1,2}	Exceedance dB
N-AT1	06/12/2021 23:57	40	Nil	Nil
N-AT2	06/12/2021 22:01	40	Nil	Nil
N-AT3	06/12/2021 22:33	40	Nil	Nil
N-AT4	07/12/2021 02:26	40	Nil	Nil
N-AT5	07/12/2021 01:15	40	Nil	Nil
N-AT6	06/12/2021 22:39	40	Nil	Nil

Notes:

- These are the results for MPO and all other mining sources. 15-minute measurements have been assumed to apply across the entire night period as a conservative measure and to represent "worst case" results; and
- By definition, cumulative noise refers to two or more noise sources. If only one other source of mining is audible, or if MPO is inaudible, the measured cumulative noise defined here is 'Nil'.

The purpose of the noise monitoring is to quantify and describe the existing acoustic environment around the mining operation and compare results with relevant limits as per the MPO Noise Management Plan (MACH Energy, 2019). Noise levels from MPO complied with noise limits at all monitoring locations during the monitoring period.

10. Blast Monitoring

There were 6 blast events during December (a total of 79 blasts YTD). Results for December 2021 are presented in **Table 10-1**. All blast results during the December 2021 monitoring period were below the criteria in Schedule 3, Condition 10 of DA 92/97 and EPL 20850 and therefore compliant.

Table 10-1 – MPO Blast Monitoring Results – December 2021

Day & Date Fired	Time Fired	Vibration (mm/s)	Overpressure (dBL)	Vibration (mm/s)	Overpressure (dBL)	Vibration (mm/s)	Overpressure (dBL)	Blast Fume Compliant
		BVOA	BVOA	BVOC	BVOC	BVO2	BVO2	
Wednesday 1/12/2021	11:28	0.080	86.3	0.300	83.4	0.310	72.7	Y
Thursday 2/12/2021	14:22	0.730	106.3	0.420	107.5	0.500	99.9	Y
Wednesday 8/12/2021	9:25	0.610	100.7	0.630	94.9	0.420	94.9	Y
Thursday 16/12/2021	13:00	1.040	102	0.820	95.1	0.550	100	Y
Wednesday 22/12/2021	13:17	0.350	92.9	0.190	92.3	0.440	99.6	Y
Thursday 23/12/2021	15:36	0.210	104.7	0.130	103.2	0.230	98.8	Y

END OF REPORT