MACHEnergy

Mount Pleasant Operation

Monthly Environmental Monitoring Report

September 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 September 2021
Reporting Period End Date	30 September 2021
Date All Data Received	8 November 2021

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:

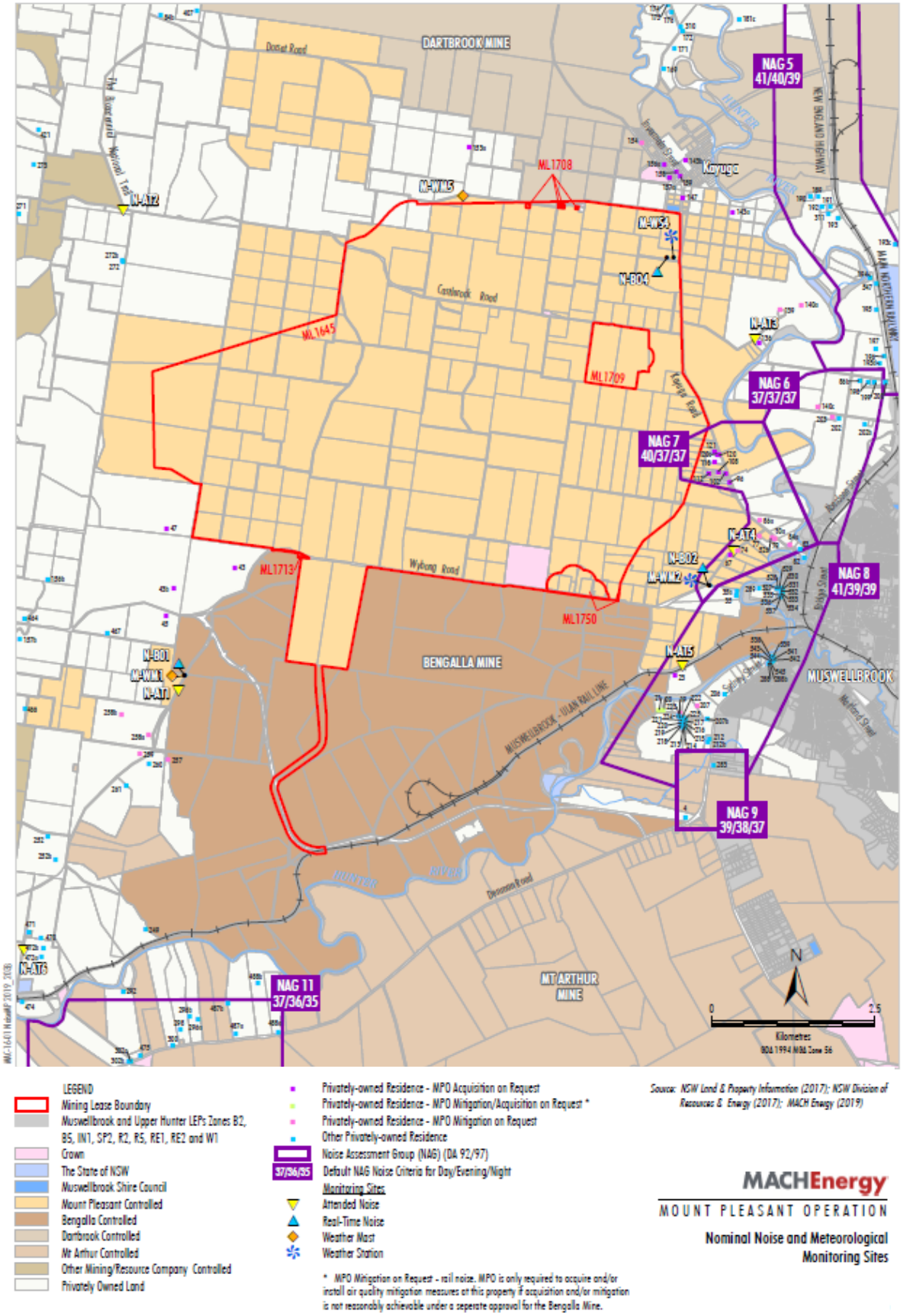
- 2 x Palas Fidas Air Quality Monitoring sites;
- Noise monitoring;
- Blast monitoring; and
- Meteorological monitoring.

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.



LEGEND

- Mining Lease Boundary
- 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
- 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
- Noise Assessment Group (NAG) (DA 92/97)
- 37/36/35 Default NAG Noise Criteria for Day/Evening/Night

Monitoring Sites

- Attended Noise
- Real-Time Noise
- Weather Mast
- Weather Station

* 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 seperate approval for the Bengalla Mine.

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2019)

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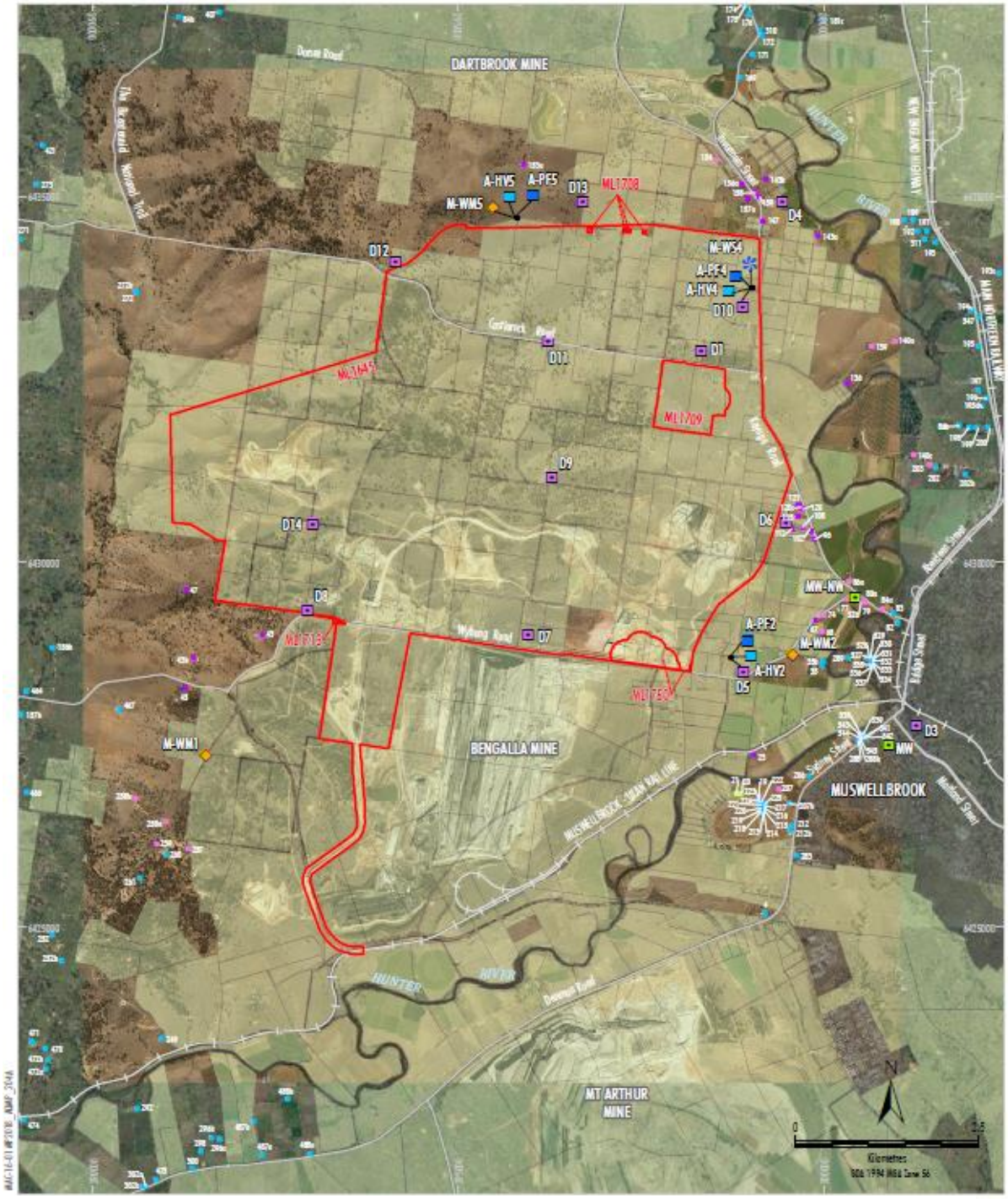
Nominal Noise and Meteorological Monitoring Sites

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



LEGEND
Mining Lease Boundary
Mine Owned
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
Monitoring Sites
Air Quality - High Volume Sampler
Air Quality - Palas Fidas
Dust Deposition Gauge
Upper Hunter Air Quality Monitoring Network
Weather Mast
Weather Station

* 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 seperate approval for the Bengalla Mine.

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2019) Orthophoto: MACH Energy (July 2018); NSW Department of Finance & Innovation (2018)

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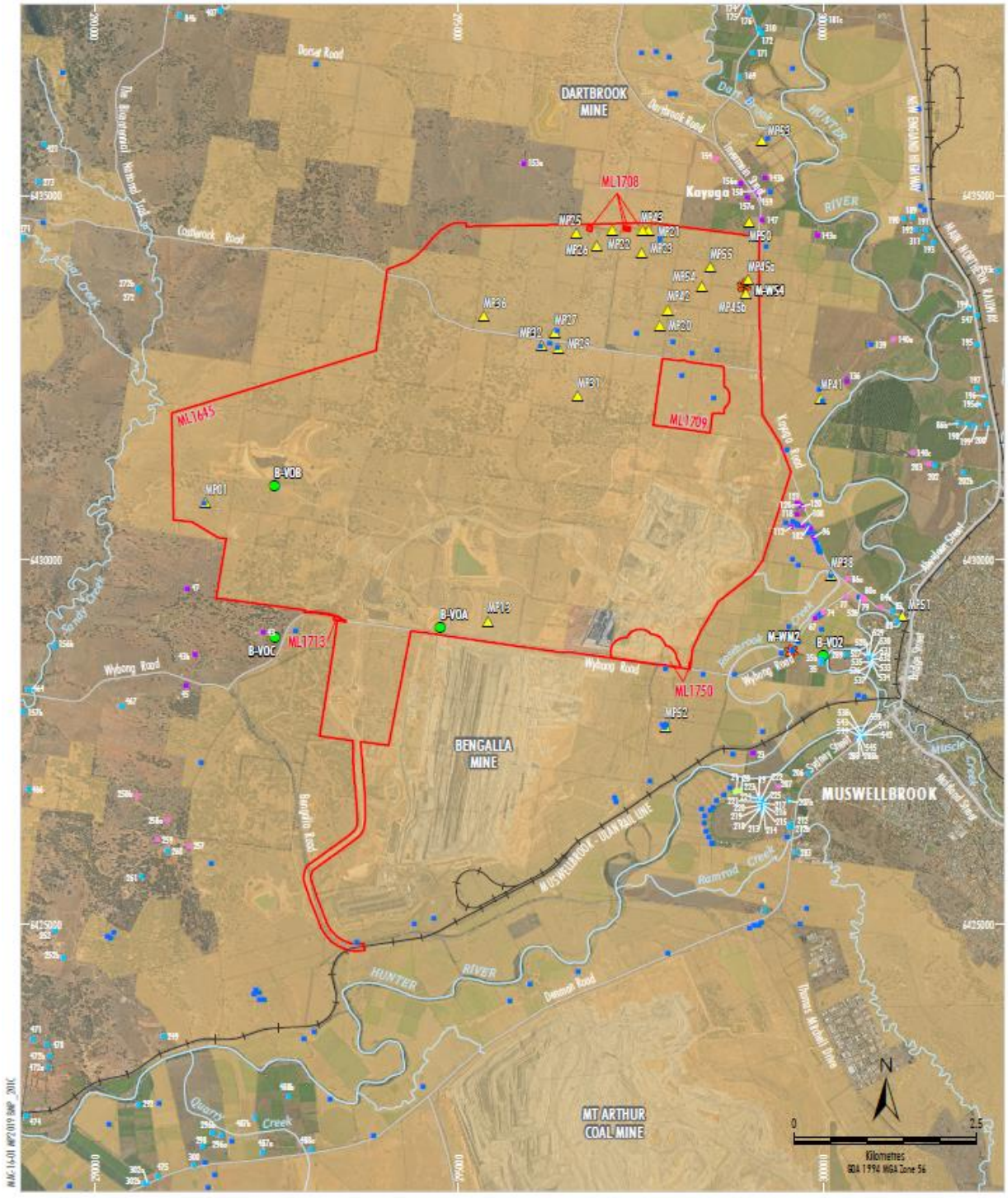
MOUNT PLEASANT OPERATION
Air Quality and Meteorological Monitoring Sites

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)

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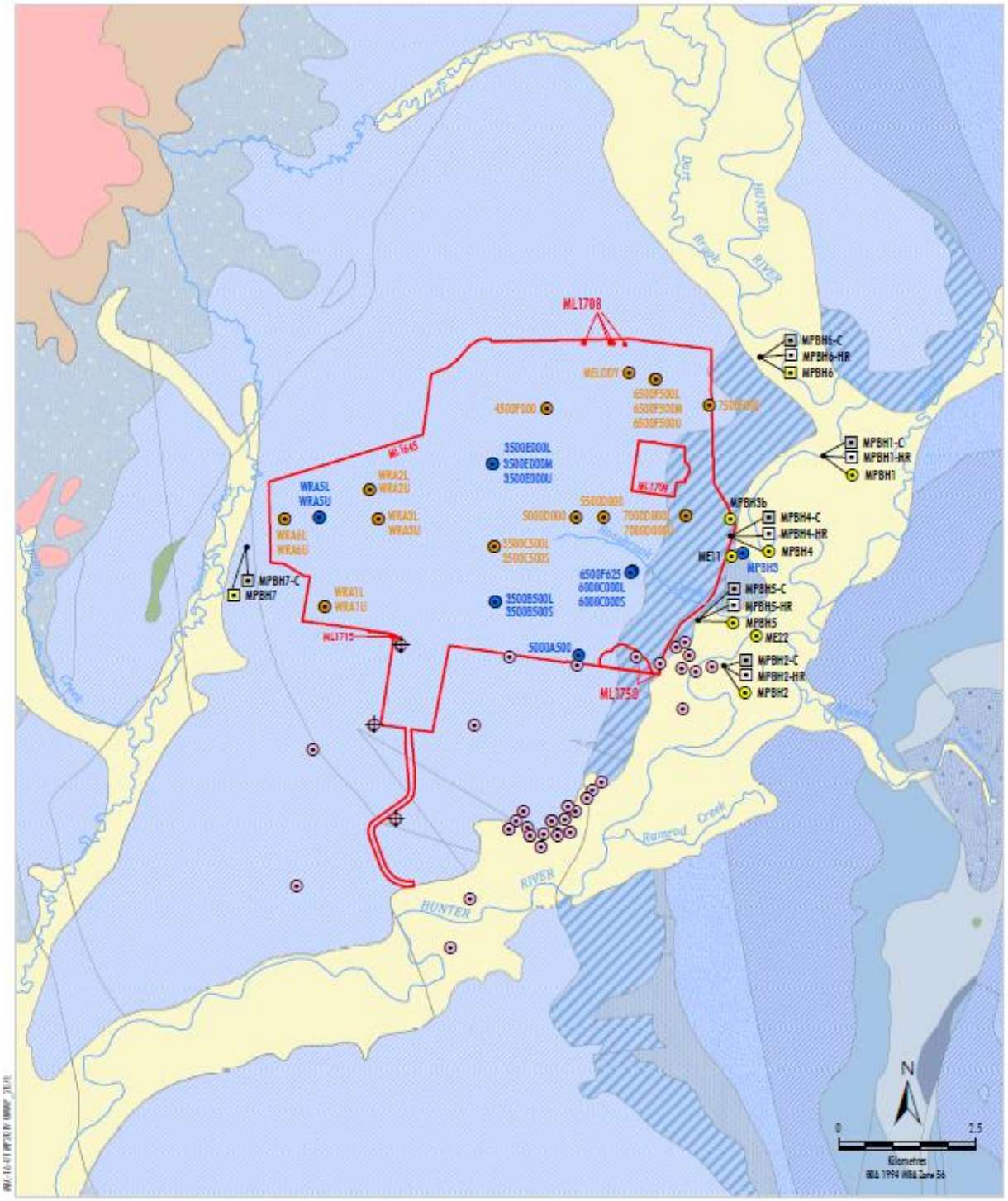
Blast Monitoring Locations

Figure 2-3 – MPO Blast Monitoring Locations



LEGEND

Mining Lease Boundary

Mount Pleasant Monitoring

- Standpipe
- Standpipe - Alluvium
- Standpipe - Historical

Planned Mount Pleasant Monitoring

- Standpipe - Coal Seam
- Standpipe - Interburden
- Standpipe - Alluvium

Bengalla Monitoring

- Standpipe
- Vibrating Wire Piezometer

Source: NSW Land & Property Information (2019); NSW Division of Resources & Energy (2019); MACH Energy (2019)

Note: Refer Figure 3 for geology legend

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Augmentations to the Groundwater Monitoring Network

Figure 2-4 – MPO Groundwater Monitoring Network

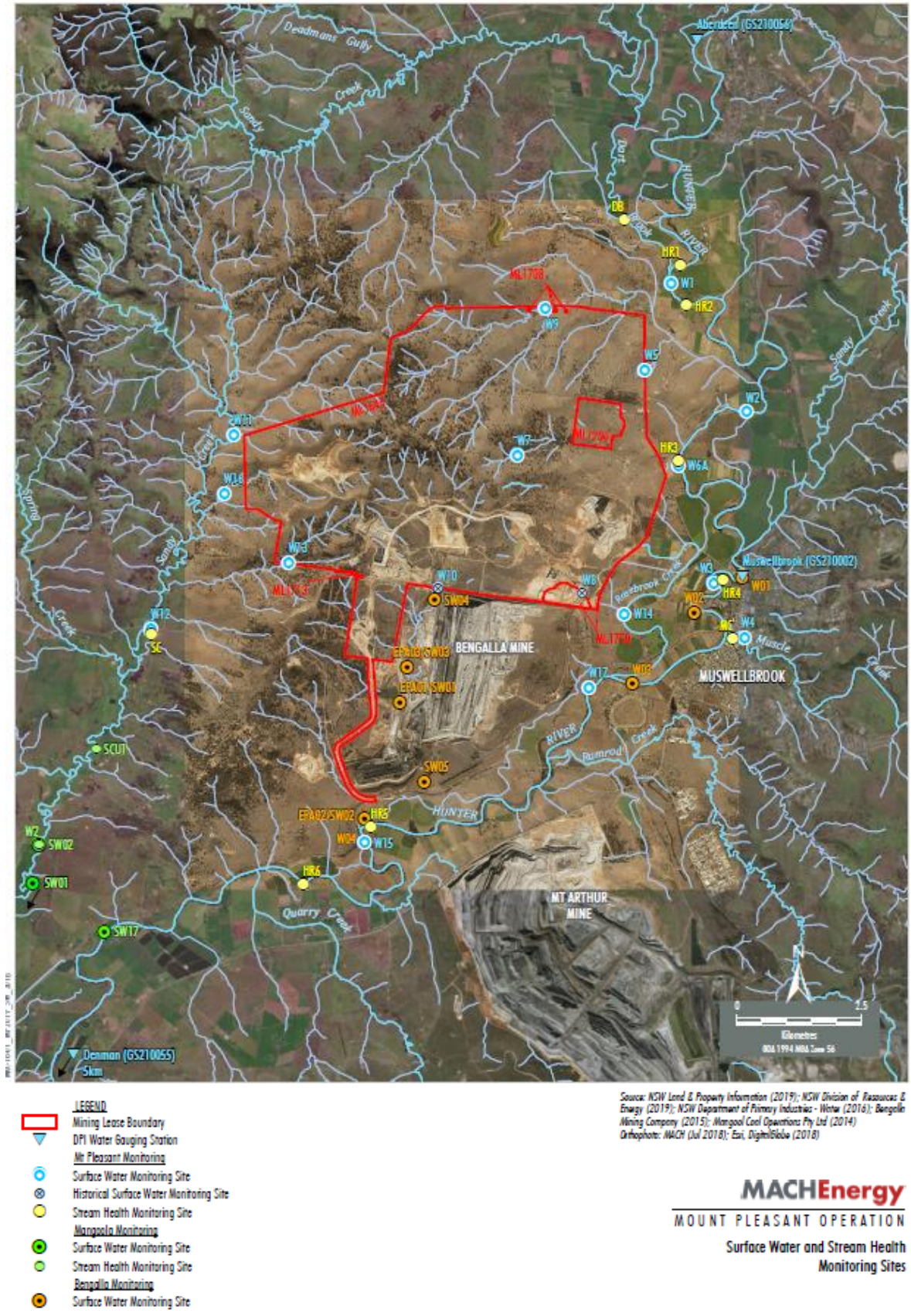


Figure 2-5 – MPO Surface Water Monitoring Network

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 (>99.2%) during September 2021 (the monitoring period), with the exception of solar radiation (86.9%). The majority of meteorological data was captured at M-WS4 (94.1%) during the monitoring period.

Throughout September 2021, there was 34mm and 36.8mm 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 16 August 2021. Sample collection was undertaken on 16 September 2021 by AECOM with sample analysis performed by ALS NATA accredited laboratory. Results are summarised in **Table 4-1**. Annual rolling averages for September 2021 have been provided as an indication of performance between September 2020 – September 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 – September 2021

Location	YTD Insoluble Solids (g/m^2.month)	Insoluble Solids Annual Rolling Average (g/m^2.month)
D1	2.3	2.4
D3a	1.5	2.0
D4	1.3	1.8
D5	3.0	3.2
D6	2.6	2.7
D7b[1]	7.8	***
D8	3.7	3.9
D9a	1.6	1.9
D10	0.9	1.2
D11	1.7	2.0
D12	0.6	1.0
D13	1.5	1.7
D14	2.8	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*
[1]Site 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 September 2021 sampling event noted that all gauges contained insects and two gauges contained vegetation. Site D3a was unable to be accessed due to a locked

gate resulting in the gauge not being collected in the reporting period. There was insufficient evidence of contamination in all other depositional dust gauges to justify them being deemed contaminated. All September 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.

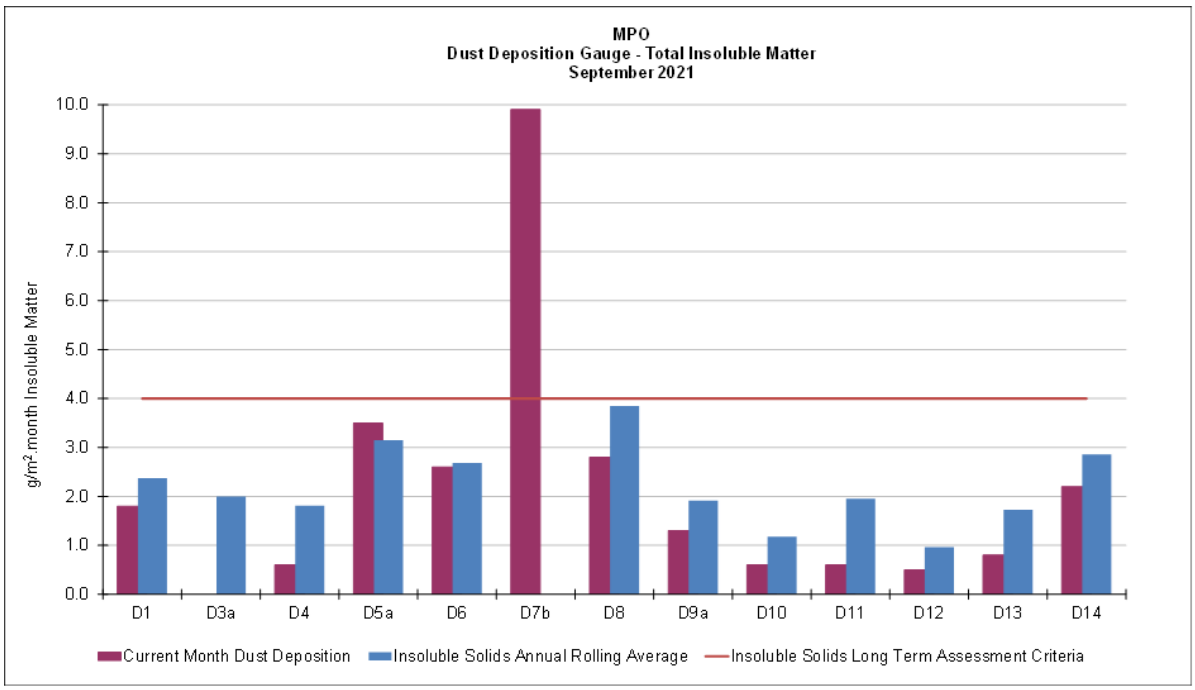


Figure 4-1: MPO Dust Deposition Monthly Results and Annual Rolling Average – September 2021

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/m^3.

5.2 Results

In September 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 September 2021 have been provided as an indication of performance between September 2020 – September 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 – September 2021

Run Date	Assessment Criterion	TSP µg/m^3		
		HVAS A-PF2	HVAS M-WS4	HVAS A-PF5
6/09/2021	-	55.3	11.0	22.6
12/09/2021	-	89.8	39.2	41.8
18/09/2021	-	54.2	24.8	21.9
24/09/2021	-	74.0	18.5	19.7
30/09/2021		34.3	10.9	14.8
Monthly Mean	-	61.5	20.9	24.2
Annual Rolling Average	*90*	55	30	30

*Note: Results in **bold** indicate an elevated reading*
1 Sample collected 1/10/2021 due to short sample run time on sampling date.

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/m^3.

6. Real Time Air Quality Monitoring

Continuous particulate matter less than 10 µm (PM_{10}) 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 September 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 PM_{10} and $PM_{2.5}$ 12-month rolling averages for September 2021 have been provided in Section 6.2 and 6.4 respectively, as an indication of performance between September 2020 – September 2021 and do not represent annual average results for 2021 as per Schedule 3, Condition 20 of DA 92/97.

6.1 PM_{10} Results – 24 hour rolling average

There were no elevated PM_{10} measurements reported throughout September 2021. The Muswellbrook NW monitor was operational during all days of September 2021. Real time PM_{10} 24 hour rolling average results for September 2021 are presented in **Table 6-1.**

Table 6-1: MPO Palas Fidas PM_{10} Data – September 2021

Date	A-PF2/EPA ID 1	A-PF4	A-PF5/EPA ID 2	Muswellbrook NW	Muswellbrook NW 24 Hour Average Limit (µg/m³)	A-PF2, A-PF4, A-PF5 24 Hour Average Limit (µg/m³)
	24 hour Average Result					
1/09/2021	23	17	22	23	44	50
2/09/2021	28	21	28	26	44	50
3/09/2021	15	11	14	14	44	50
4/09/2021	15	9	10	15	44	50
5/09/2021	10	6	6	11	44	50
6/09/2021	13	9	9	11	44	50
7/09/2021	14	9	11	18	44	50
8/09/2021	14	10	10	15	44	50
9/09/2021	15	8	9	16	44	50
10/09/2021	20	11	11	19	44	50
11/09/2021	19	13	12	17	44	50
12/09/2021	23	16	17	29	44	50
13/09/2021	18	13	12	23	44	50
14/09/2021	9	7	9	8	44	50
15/09/2021	10	9	13	10	44	50
16/09/2021	13	15	16	14	44	50
17/09/2021	14	11	12	11	44	50
18/09/2021	21	11	13	18	44	50
19/09/2021	10	8	8	10	44	50
20/09/2021	14	8	8	20	44	50
21/09/2021	16	11	11	19	44	50

22/09/2021	14	13	11	16	44	50
23/09/2021	12	8	8	12	44	50
24/09/2021	21	9	9	24	44	50
25/09/2021	26	12	15	27	44	50
26/09/2021	12	9	13	11	44	50
27/09/2021	15	12	16	16	44	50
28/09/2021	18	14	19	18	44	50
29/09/2021	16	11	8	13	44	50
30/09/2021	14	9	9	7	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 PM_{10} 24 hour rolling average results at MPO air quality monitoring sites September 2021.

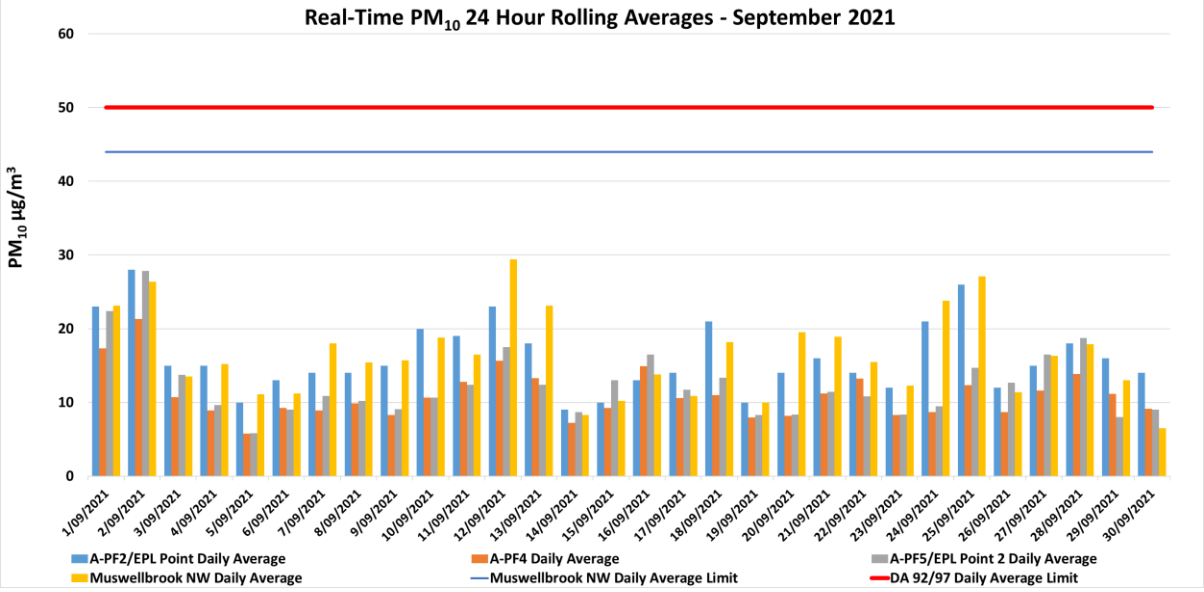


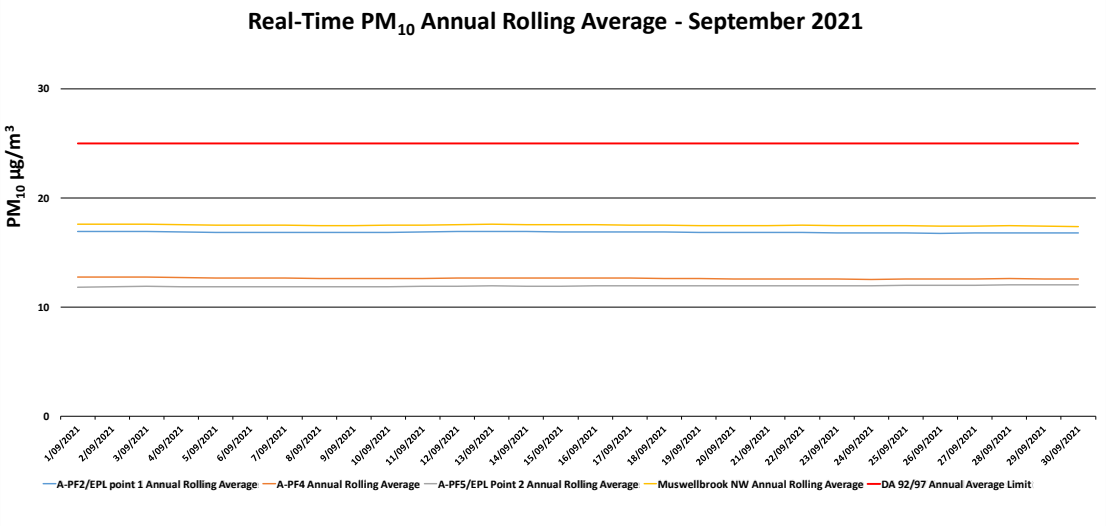
Figure 6-1: Real-time PM_{10} 24 hour rolling average results for September 2021.

6.2 PM_{10} Results – Annual rolling average

There were no elevated PM_{10} measurements reported at MPO for the September 2021 annual rolling average. Real time PM_{10} annual rolling averages for September 2021 are presented in **Figure 6-2** below.

Figure 6-2: Real-time PM_{10} Annual Rolling average results for September 2021.

6.3 $PM_{2.5}$ Results – 24 hour rolling average



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

Table 6-2: MPO Palas Fidas $PM_{2.5}$ Data – September 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/m³)
	24 hour Average Result			
1/09/2021	7	6	7	25
2/09/2021	11	10	14	25
3/09/2021	5	4	5	25
4/09/2021	5	4	4	25
5/09/2021	3	3	3	25
6/09/2021	4	4	4	25
7/09/2021	4	4	4	25
8/09/2021	4	4	4	25
9/09/2021	4	4	4	25
10/09/2021	5	4	4	25
11/09/2021	6	5	5	25
12/09/2021	7	6	8	25
13/09/2021	5	4	4	25
14/09/2021	3	3	3	25
15/09/2021	4	4	4	25
16/09/2021	4	5	5	25
17/09/2021	6	5	5	25
18/09/2021	6	4	5	25
19/09/2021	4	4	4	25
20/09/2021	4	3	3	25
21/09/2021	4	3	4	25
22/09/2021	4	4	4	25

23/09/2021	4	3	4	25
24/09/2021	4	3	4	25
25/09/2021	6	5	6	25
26/09/2021	4	4	5	25
27/09/2021	4	4	5	25
28/09/2021	5	5	6	25
29/09/2021	5	4	4	25
30/09/2021	5	4	4	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 September 2021 are presented in **Figure 6-3** below.

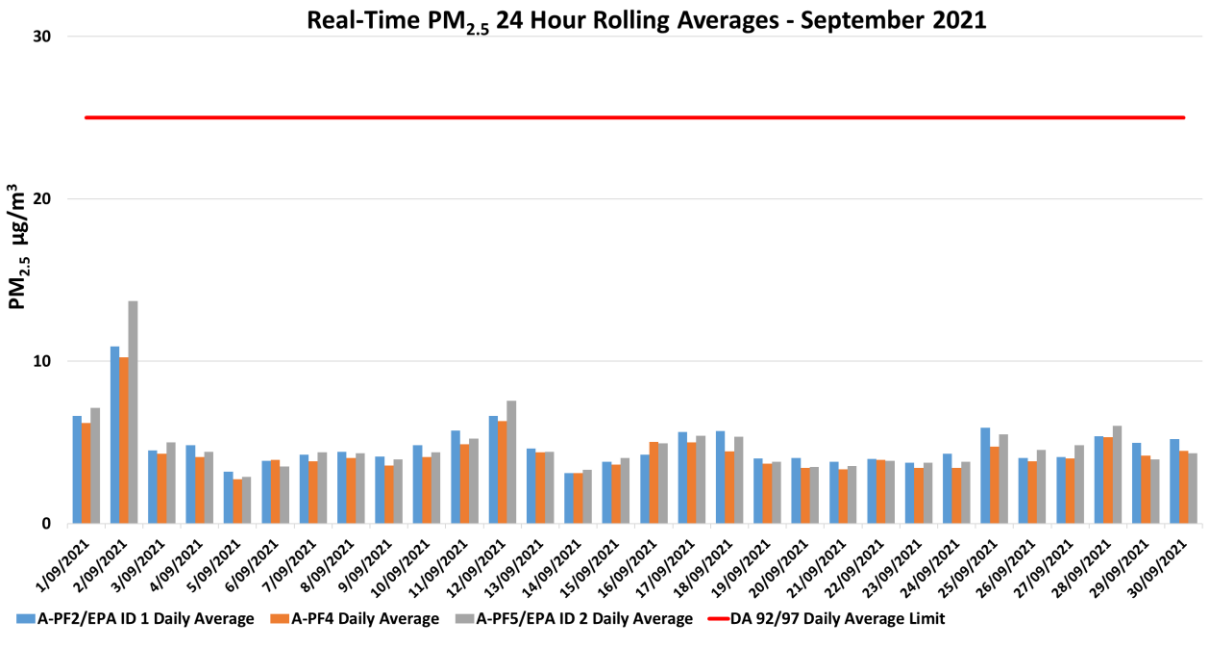


Figure 6-3: Real-time $PM_{2.5}$ 24 hour rolling average results for September 2021.

6.4 $PM_{2.5}$ Results - Annual rolling average

There were no elevated $PM_{2.5}$ measurements reported at MPO for the September 2021 annual rolling average. Real time $PM_{12.5}$ annual rolling averages for September 2021 are presented in **Figure 6-4** below.

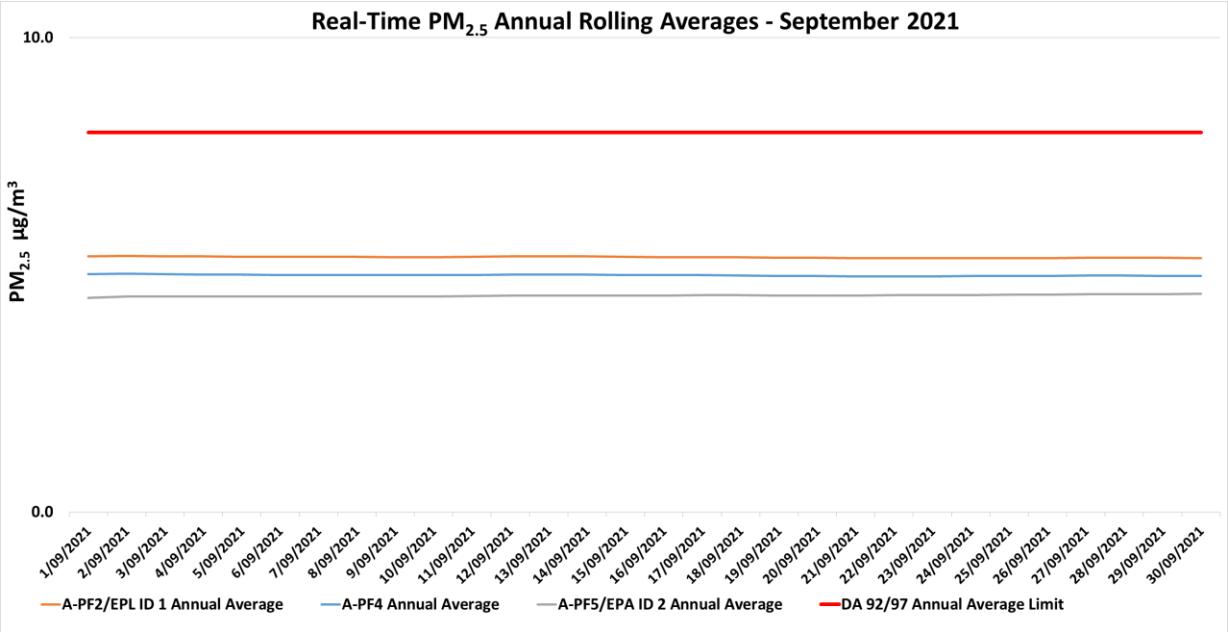


Figure 6-4: Real-time $PM_{2.5}$ Annual Rolling average results for September 2021.

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

Monthly surface water monitoring was conducted by AECOM on 29 September 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.**

Table 7-1 – MPO Monthly Surface Water Monitoring Results – 29 September 2021

Station	pH	Electrical Conductivity (EC) (µs/cm)[1]	Total Suspended Solids (TSS) (mg/L)	Total Dissolved Solids (TDS) (mg/L)
W1	8.3	640	310	<5
W2	8.2	**710**	334	6
W3	8.2	740	370	12
W4	7.7	2150	1160	<5
W5	*	*	*	*
W6A	8.4	**700**	360	10
W7	*	*	*	*
W9	*	*	*	*
W11	8.2	5100	2480	<5
W12	7.8	5250	2640	<5
W13	*	*	*	*
W14	*	*	*	*
W15	8.1	800	411	16
W16	*	*	*	*
W17	8.1	**780**	389	26

Notes:
*Results in **bold** indicate elevated reading of adopted assessment criteria.*
**Dry or insufficient water to sample.*
*** TDS result calculated due to high TSS containing colloidal clay particles which have interfered with the Laboratory TDS result.*
^ 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).
*** Calculated result due to interference from colloidal material interfering with laboratory result.*

During the September 2021 monitoring event, nine of the eighteen monitoring location were found to be dry or contain insufficient water to sample. Site W2, W6A and W17 exceeded their respective EC trigger levels. 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 during September 2021. The next scheduled monitoring event is in November 2021.

9. Noise Monitoring

Attended noise monitoring was undertaken during the night period of 21/22 September 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 September 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 – 21/22 September 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	21/09/2021 23:55	1.3	G	45	No	IA	NA
N-AT2	21/09/2021 22:02	1.9	D	45	Yes	38	Nil
N-AT3	21/09/2021 22:41	2.1	F	45	No	59	NA
N-AT4	22/09/2021 00:39	0.7	E	45	Yes	IA	Nil
N-AT4[5]	22/09/2021 01:16	1.8	D	45	Yes	<30	Nil
N-AT5	21/09/2021 22:43	0.9	E	45	Yes	IA	Nil
N-AT6	21/09/2021 23:55	1.3	G	45	No	IA	NA

Notes:

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

Table 9-2 – $L_{Aeq,15min}$ Generated by MPO: Attended Night Monitoring – 21/22 September 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	21/09/2021 23:55	1.3	G	43	No	IA	NA
N-AT2	21/09/2021 22:02	1.9	D	36	Yes	30	Nil
N-AT3	21/09/2021 22:41	2.1	F	41	No	46	NA
N-AT4	22/09/2021 00:39	0.7	E	42	Yes	IA	Nil

N-AT4[5]	22/09/2021 01:16	1.8	D	40	Yes	<30	Nil
N-AT5	21/09/2021 22:43	0.9	E	35	Yes	IA	Nil
N-AT6	21/09/2021 23:55	1.3	G	43	No	IA	NA

Notes:

1. *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;*
2. *Estimated or measured $L_{Aeq,15minute}$ attributed to MPO;*
3. *NA in exceedance column means meteorological conditions outside those specified in Condition L2.3 of EPL 20850 and thus criterion is not applicable; and*
4. *Bold results indicate exceedance of criteria.*
5. *Remeasure*

Table 9-3 – $L_{Aeq,period}$ Cumulative Noise: Attended Night Monitoring – 21/22 September 2021

Location	Start Date and Time	Cumulative Noise Criterion LAeq dB	Measured Mining Only $L_{Aeq,period}$ dB[1,2]	Exceedance dB
N-AT1	21/09/2021 23:55	40	Nil	Nil
N-AT2	21/09/2021 22:02	40	Nil	Nil
N-AT3	21/09/2021 22:41	40	Nil	Nil
N-AT4	22/09/2021 00:39	40	Nil	Nil
N-AT4[3]	22/09/2021 01:16	40	37	Nil
N-AT5	21/09/2021 22:43	40	Nil	Nil
N-AT6	21/09/2021 23:55	40	Nil	Nil

Notes:

1. *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*
2. *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 9 blast events during September (a total of 58 blasts YTD). Results for September 2021 are presented in **Table 10-1**. All blast results during the September 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 – September 2021

Day & Date Fired	Time Fired	Vibration (mm/s) BVOA	Overpressure (dBL) BVOA	Vibration (mm/s) BVOC	Overpressure (dBL) BVOC	Vibration (mm/s) BVO2	Overpressure (dBL) BVO2	Blast Fume Compliant
Wednesday 1/09/2021	13:11	0.560	108.3	0.420	97.8	0.490	99.3	Y
Thursday 2/09/2021	13:16	0.310	99.9	0.220	97.8	0.640	94.6	Y
Thursday 9/09/2021	13:07	0.710	102.4	0.310	97.7	0.410	96.7	Y
Friday 10/09/2021	12:10	0.560	108.3	0.440	97.8	0.490	99.3	Y
Wednesday 15/09/2021	1:05	0.150	95.2	0.190	101.3	0.210	97.4	Y
Tuesday 21/09/2021	13:05	0.760	100.8	0.610	100.1	0.750	104.4	Y
Thursday 23/09/2021	14:23	0.610	102.3	0.780	99.1	0.780	98.9	Y
Monday 27/09/2021	14:33	1.180	114.3	0.850	102.0	0.900	95.1	Y
Thursday 30/09/2021	13:00	0.820	98.0	0.420	102.5	0.640	97.7	Y

END OF REPORT