MACHEnergy

Mount Pleasant Operation

Monthly Environmental Monitoring Report

August 2025

1. Introduction

The Mount Pleasant Operation (MPO) is located within 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*), the MPO Development Approval (DA 92/97) and the MPO Development Consent (SSD 10418).

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 and SSD 10418
Reporting Period Start Date	1 August 2025
Reporting Period End Date	31 August 2025
Date All Data Received	18 September 2025

Links to three key regulatory documents are provided here:

- Mount Pleasant Operation Development Application Approval DA 92/97; and
- Mount Pleasant Operation Development Consent SSD 10418.

2. Monitoring Requirements

The MPO EPL 20850 specifically requires the monitoring of:

- 2 x Continuous particulate monitors
- Noise monitoring.
- Blast monitoring; and
- Meteorological monitoring.

Monitoring of sites not required by the EPL are conducted in accordance with the respective Management Plans as required by Project Approval (DA 92/97) and Development Consent (SSD 10418).

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.

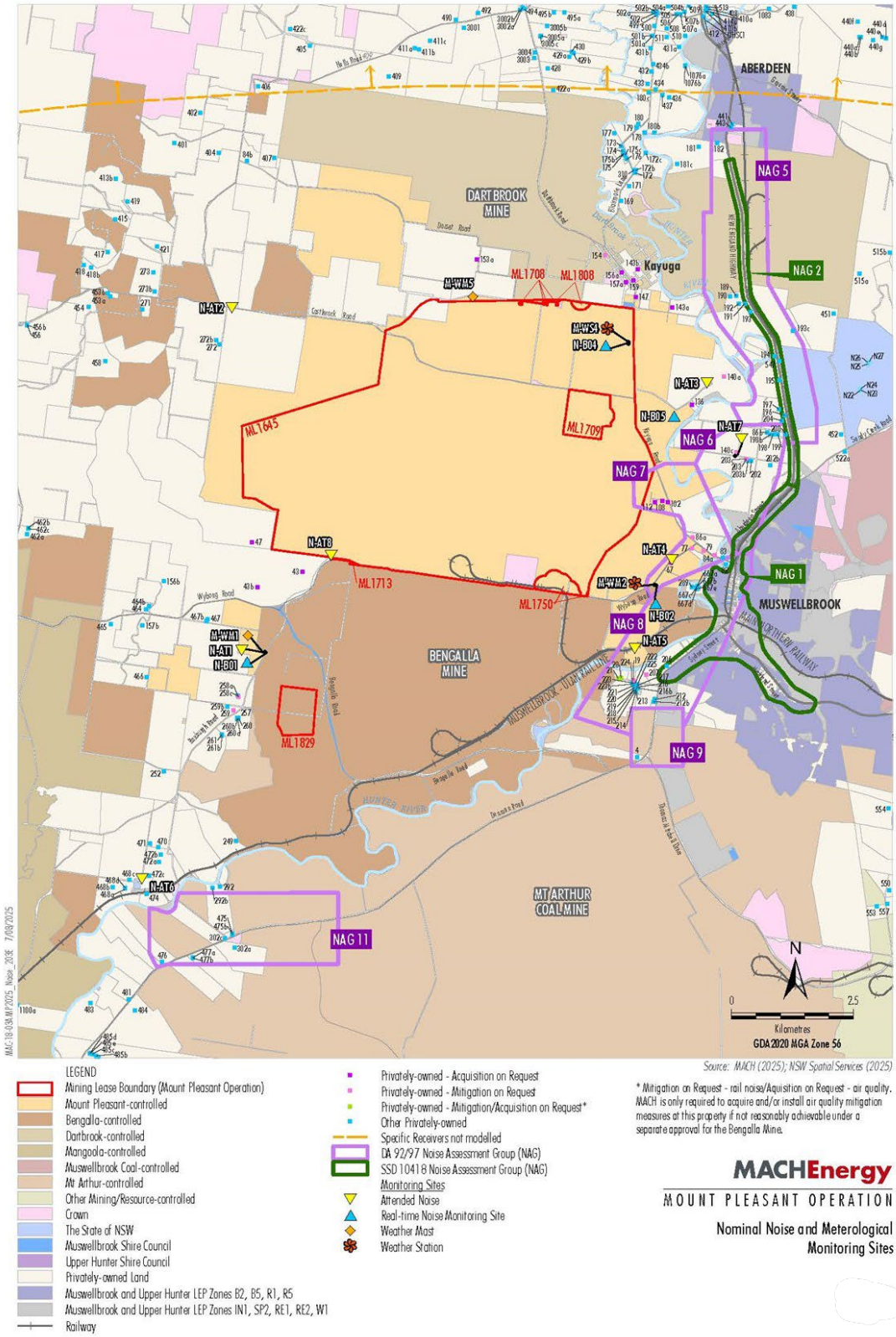


Figure 2-1 – MPO Attended Noise Monitoring Assessment Groups and Locations - Approved (SSD 10418) Water Management Plan

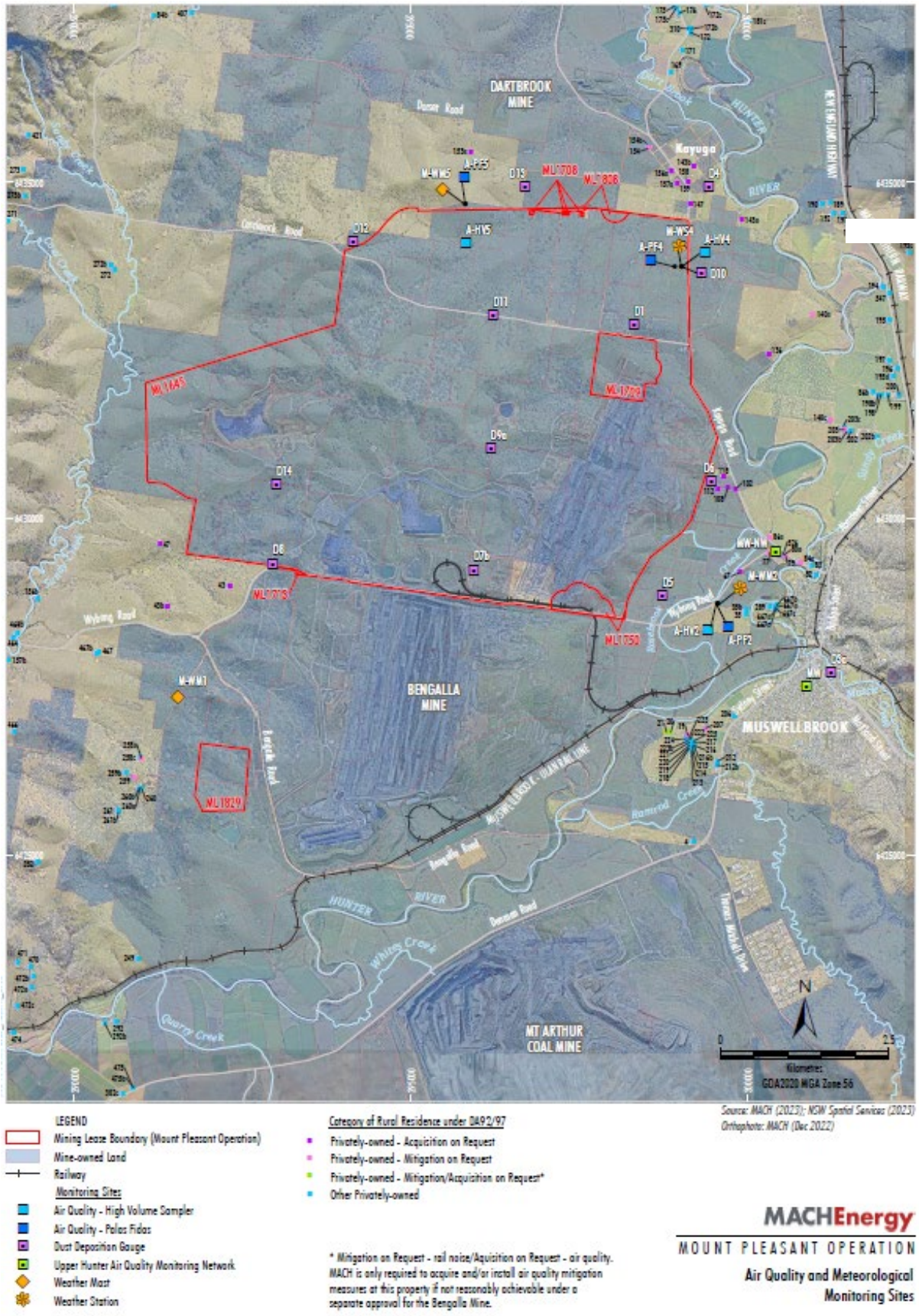


Figure 2-2 – MPO Air Quality and Meteorological Monitoring Network - Approved (SSD 10418) Water Management Plan

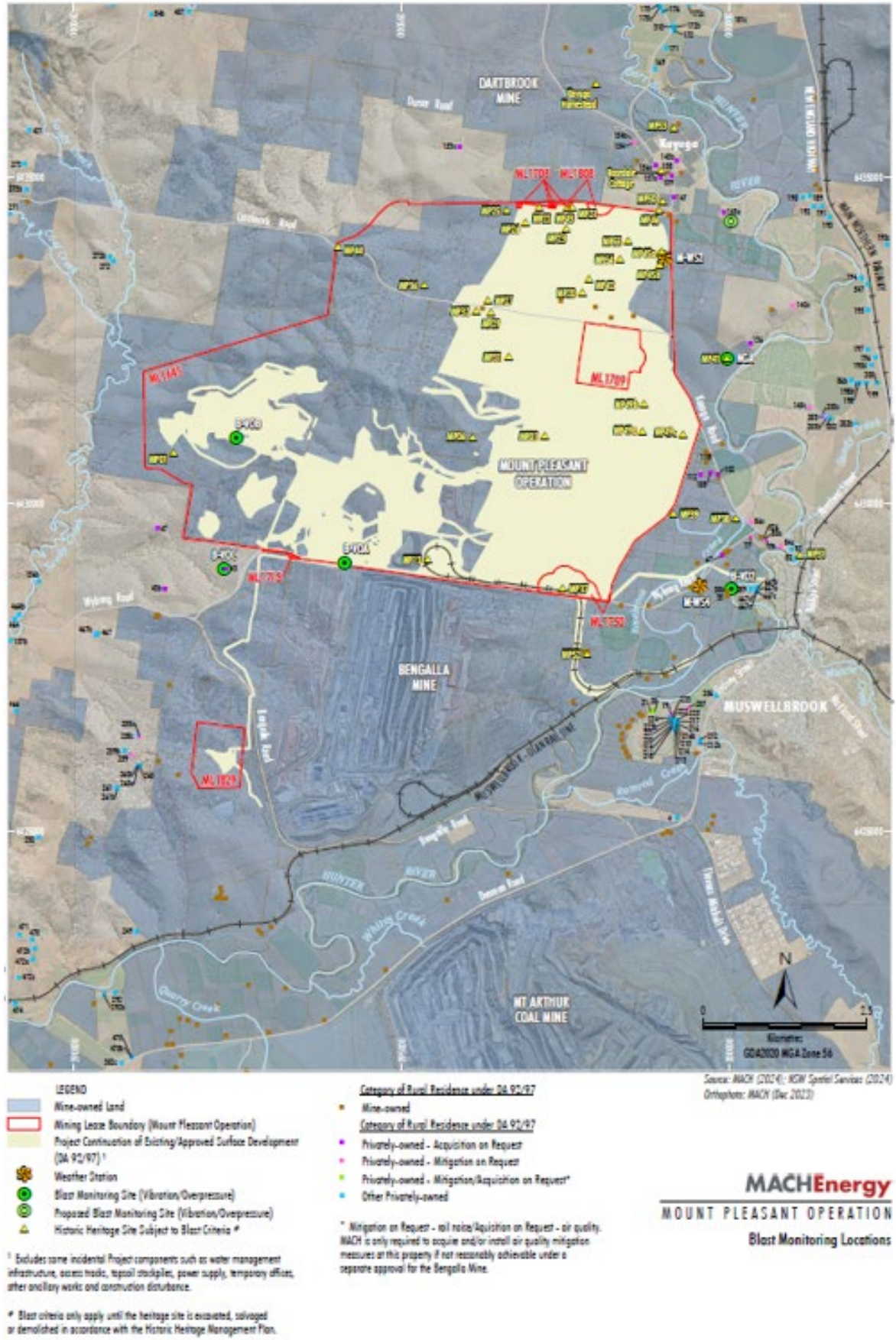


Figure 2-3 – MPO Blast Monitoring Locations

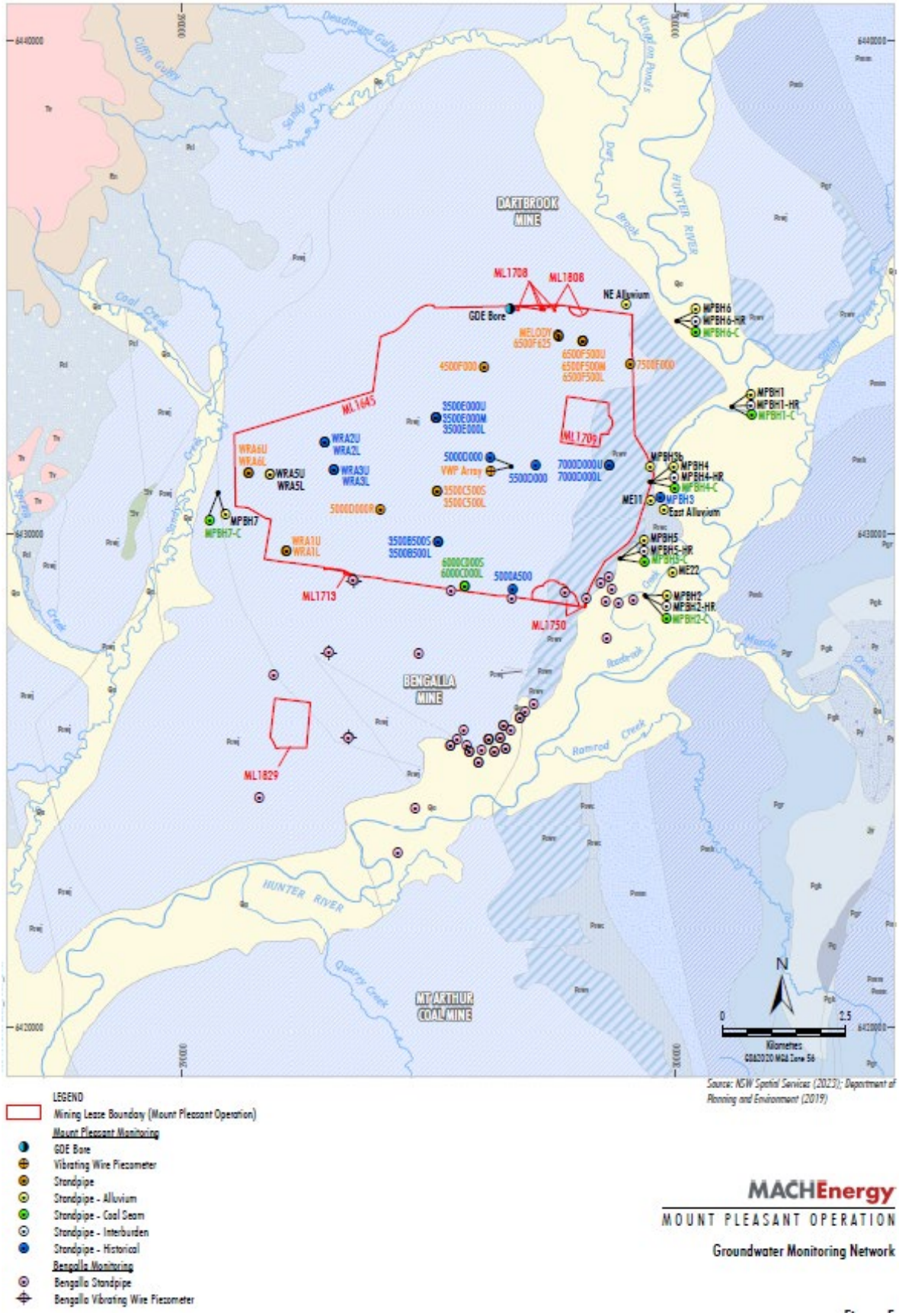
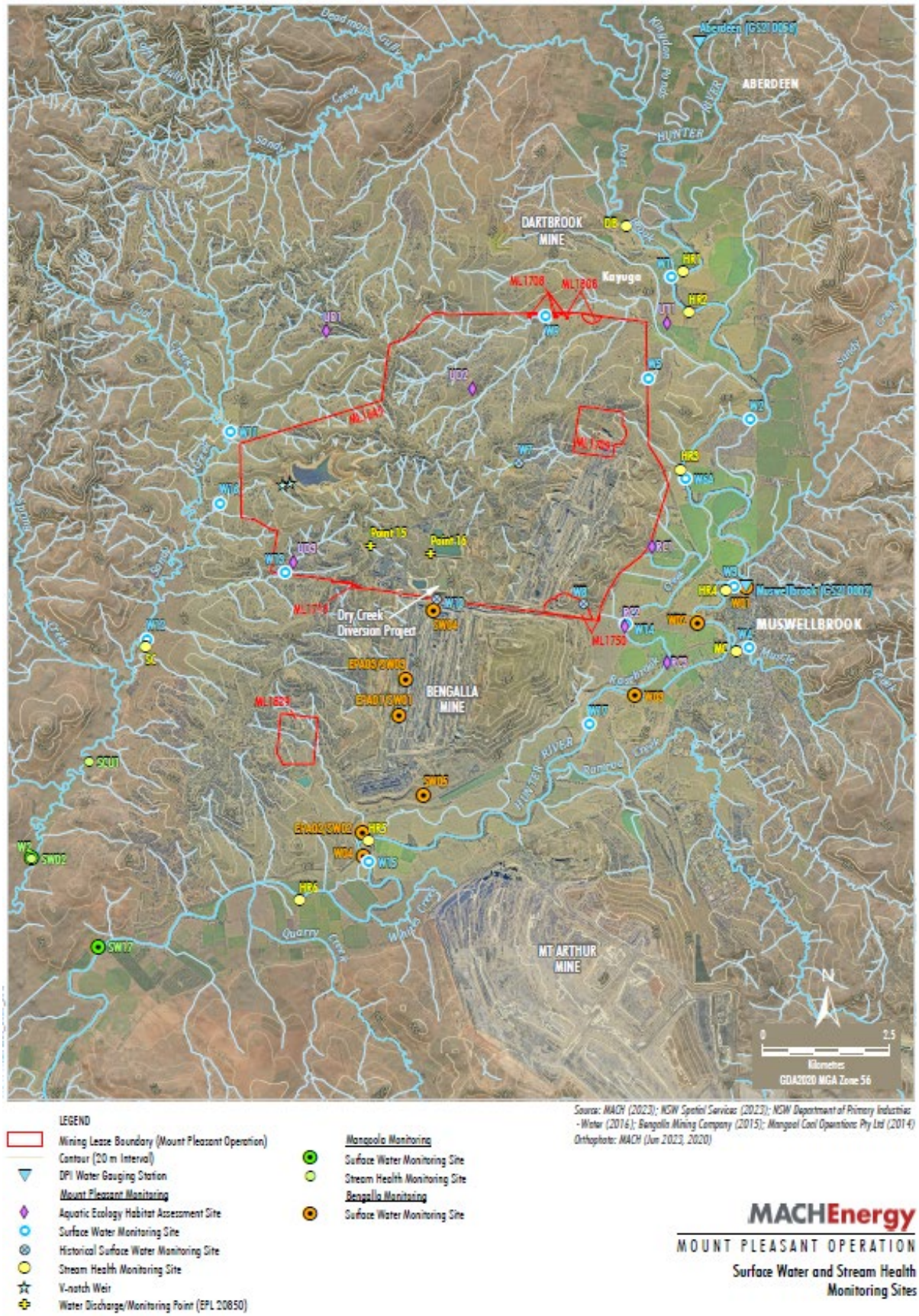


Figure 2-4 – MPO Groundwater Monitoring Network – Approved (SSD 10418) Water Management Plan



Source: MACH (2023); NSW Spatial Services (2023); NSW Department of Primary Industries - Water (2016); Bengalla Mining Company (2015); Mangoola Coal Operations Pty Ltd (2014)
Orthophoto: MACH (Jun 2023, 2020)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Contour (20 m Interval)
- DPI Water Gauging Station

Mount Pleasant Monitoring

- Aquatic Ecology Habitat Assessment Site
- Surface Water Monitoring Site
- Historical Surface Water Monitoring Site
- Stream Health Monitoring Site
- V-notch Weir
- Water Discharge/Monitoring Point (EPL 20850)

Mangoola Monitoring

- Surface Water Monitoring Site
- Stream Health Monitoring Site

Bengalla Monitoring

- Surface Water Monitoring Site

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MOUNT PLEASANT OPERATION
Surface Water and Stream Health Monitoring Sites

Figure 2-5 – MPO Surface Water Monitoring Network - Approved (SSD 10418) Water Management Plan

3. Meteorological Monitoring

Weather data is measured continuously[1] at the Kayuga Road (M-WS4) and the Wybong Road (M-WS2) meteorological stations. In addition to air quality parameters (particulate matter less than 10 µm and less than 2.5 µm (PM_{10} and $PM_{2.5}$)), the weather stations measure wind speed and direction, temperature (at 2 metres (m) and 10m), temperature inversion (using the sigma theta method), solar radiation, relative humidity, rainfall, and atmospheric pressure.

Meteorological data was captured at M-WS2 and M-WS4 during the monitoring period. Throughout August 2025, there was 130.8mm and 143.8mm of rainfall recorded at M-WS2 and M-WS4, respectively.

4. Dust Depositional Monitoring

4.1 Methodology

The dust deposition monitoring network comprises of thirteen (13) dust deposition gauges (DDG) that are collected on a monthly basis. Details of the monitoring locations are shown in Figure 2-2.

4.2 Assessment Criteria

Dust Deposition were assessed as per the MPO Air Quality and Greenhouse Gas Management Plan (MACH Energy, 2024). 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.

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. AECOM determines a gauge sample 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 an elevated level of organic matter) and field notation that bird droppings or insects were present is likely to be considered contaminated.

While the new SSD 10418 doesn't explicitly mention dust deposition gauges, there's a notable shift in regulations towards embracing high volume air sampler results and continuous air quality monitoring programs, with a specific focus on total particulate matter, PM10, and PM2.5. These modern monitoring techniques offer a more comprehensive approach to environmental surveillance, furnishing real-time data and insights into air quality conditions. By harnessing these advanced methods, MPO can ensure the implementation of robust monitoring practices. This transition from the previous development consent DA92/97

[1] The EPA's Ambient air monitoring guidance note (Guidance Note) states that after allowing sufficient down time for routine maintenance and calibrations a continuous monitoring system should be able to achieve at least a 95% availability.

(which is yet to be surrendered) to SSD 10418 signifies a proactive measure towards upholding environmental compliance. Therefore, Dust Depositional Monitoring will continue to be included in monthly reporting as per DA92/97 up until surrender where it will be discontinued. 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.

4.3 Results

Dust Deposition Data was conducted by AECOM during the monitoring period. Sample analysis was performed by ALS, a National Accreditation and Testing Authority (NATA) accredited laboratory.

Results are summarised in **Table 4-1**. Annual rolling averages have been provided as an indication of performance in the 12 months leading up to the current monitoring period as per Schedule 3, Condition 20 of DA 92/97 and Schedule 2, Condition B28 of SSD 10418.

Table 4-1: Dust Depositional Results – August 2025

Location	Monthly Insoluble Solids (g/m^2.month)	Insoluble Solids Annual Rolling Average (g/m^2.month)
D1	10.0	3.6
D3	1.1	1.4
D4	0.6	1.1
D5a	1.8	2.1
D6	1.3	2.0
D7b	160**	**7.5**
D8	4.5	**4.9**
D9a	2.2	3.7
D10	0.9	1.2
D11	3.4	**4.4**
D12	0.9	1.4
D13	0.9	2.1
D14	2.8	**4.1**
Criterion	-	**4.0**

Notes:
*Results in **bold** indicate an elevated measurement of adopted assessment criteria.*
** Insufficient monthly results to calculate annual average*
*** Contaminated results*

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

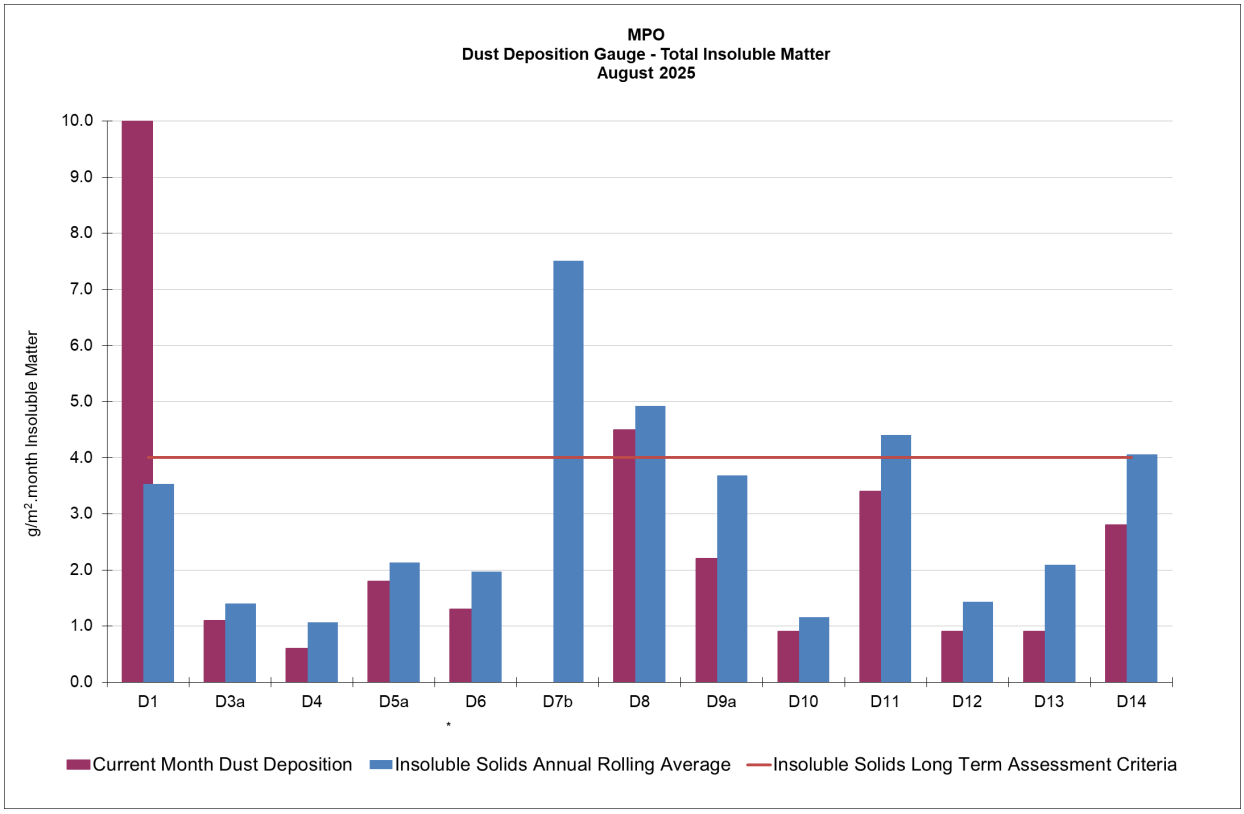

Figure 4-1: MPO Dust Deposition Monthly Results and Annual Rolling Average

5. Total Suspended Particulates

5.1 Methodology

Three Total Suspended Particulate Matter (TSP) High-Volume Air Samplers (HVAS) are run for 24 hours every six days. The locations are displayed in **Table 5-1** below.

Table 5-1 Total Suspended Particulate Monitoring Sites

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

5.2 Assessment Criteria

Total Suspended Particulates were assessed as per the MPO Air Quality and Greenhouse Gas Management Plan (MACH Energy, 2024) 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 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), Project Approval DA 92/97 and Development Consent SSD 10418. The DA 92/97 and SSD 10418 both specify an annual average project contribution plus background criterion of 90µg/m3.

5.3 Results

Sample collection was undertaken by AECOM with sample analysis performed by ALS, a NATA accredited laboratory. TSP results for the monitoring period are provided in Table 5-2. Twelve month rolling averages to the current month are provided as an indication of performance as per Schedule 3, Condition 20 of DA 92/97 and Schedule 2, Condition B28 of SSD 10418.

Table 5-2 Total Suspended Particulate Monitoring Data – August 2025

Run Date	Assessment Criterion	TSP µg/m^3		
		HVAS A-PF2	HVAS A-PF5	HVAS M-WS4
04/08/2025	-	16.7	26.3	18.4
10/08/2025		10.5	37.8	10.7
16/08/2025		72.6	16.9	18.6
22/08/2025	-	21	12.2	18.7
28/08/2025	-	75.9	6.6	7.3
*Monthly Mean	-	39.3	20.0	14.7
Annual Rolling Average	90	52	48	36

Notes:
**Results have been rounded to one decimal place for reporting purposes where applicable.*
*Results in **bold** indicate an elevated measurement of adopted assessment criteria.*

6. Real Time Air Quality Monitoring

6.1 Methodology

Continuous particulate matter monitoring less than 10 µm (PM10) and particulate matter less than 2.5 µm (PM2.5) was conducted continuously at three locations (one utilised for management only) at MPO during the monitoring period.

6.2 Assessment Criteria

The EPA identification numbers 1 and 2 refer to monitors installed on Wybong Road (A-PF2) and Dorset Road (A-PF5), respectively. In addition, a third monitor (A-PF4) is installed on Kayuga Road with data used for management purposes only. Project Approval Schedule 3, Condition 20 of DA 92/97 and Development Consent Schedule 2, Condition B28 of SSD 10418 specify a limit for PM10 of 50 µg/m3 and PM2.5 of 25 µg/m3 in a 24-hour daily average.

6.3 Results

Real time PM10 and PM2.5 annual rolling averages to the current month have been provided in **Figures 6.2 and 6.4**, respectively. **Figure 6.1 and Table 6.1** below show the real-time PM_{10} 24 hour daily average results at MPO air quality monitoring sites during the

monitoring period. Real time $PM_{2.5}$ 24-hour average results during the reporting period are presented in **Figure 6.3** and **Table 6.2.**

Table 6-1: MPO Continuous Particulate PM_{10} Data – August 2025

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			
01/08/2025	11.83	12.51	14.98	50
02/08/2025	9.44	9.21	11.59	50
03/08/2025	6.90	6.42	6.33	50
04/08/2025	9.86	9.99	9.48	50
05/08/2025	12.06	10.62	11.35	50
06/08/2025	10.81	7.52	6.95	50
07/08/2025	11.02	7.95	8.12	50
08/08/2025	11.07	9.83	13.25	50
09/08/2025	10.99	10.04	12.49	50
10/08/2025	8.83	7.89	11.20	50
11/08/2025	10.01	9.19	15.97	50
12/08/2025	10.58	10.21	14.95	50
13/08/2025	12.75	10.53	10.72	50
14/08/2025	13.78	33.06	15.76	50
15/08/2025	11.84	18.21	14.17	50
16/08/2025	14.46	11.06	8.25	50
17/08/2025	18.66	7.50	6.43	50
18/08/2025	11.71	7.43	7.23	50
19/08/2025	11.98	8.85	13.36	50
20/08/2025	10.84	9.47	11.23	50
21/08/2025	7.46	7.41	8.68	50
22/08/2025	9.72	9.33	10.14	50
23/08/2025	10.52	9.57	8.10	50
24/08/2025	12.26	14.05	11.59	50
25/08/2025	12.46	10.88	9.16	50
26/08/2025	12.17	10.92	9.83	50
27/08/2025	16.92	9.75	7.73	50
28/08/2025	17.50	7.93	7.10	50
29/08/2025	20.17	7.72	6.64	50
30/08/2025	15.02	7.78	6.65	50
31/08/2025	11.85	8.22	7.04	50

*Results in **bold** indicate an elevated measurement of adopted assessment criteria.*
Results with "- "indicate dates where data was affected by maintenance or servicing (scheduled and unscheduled)

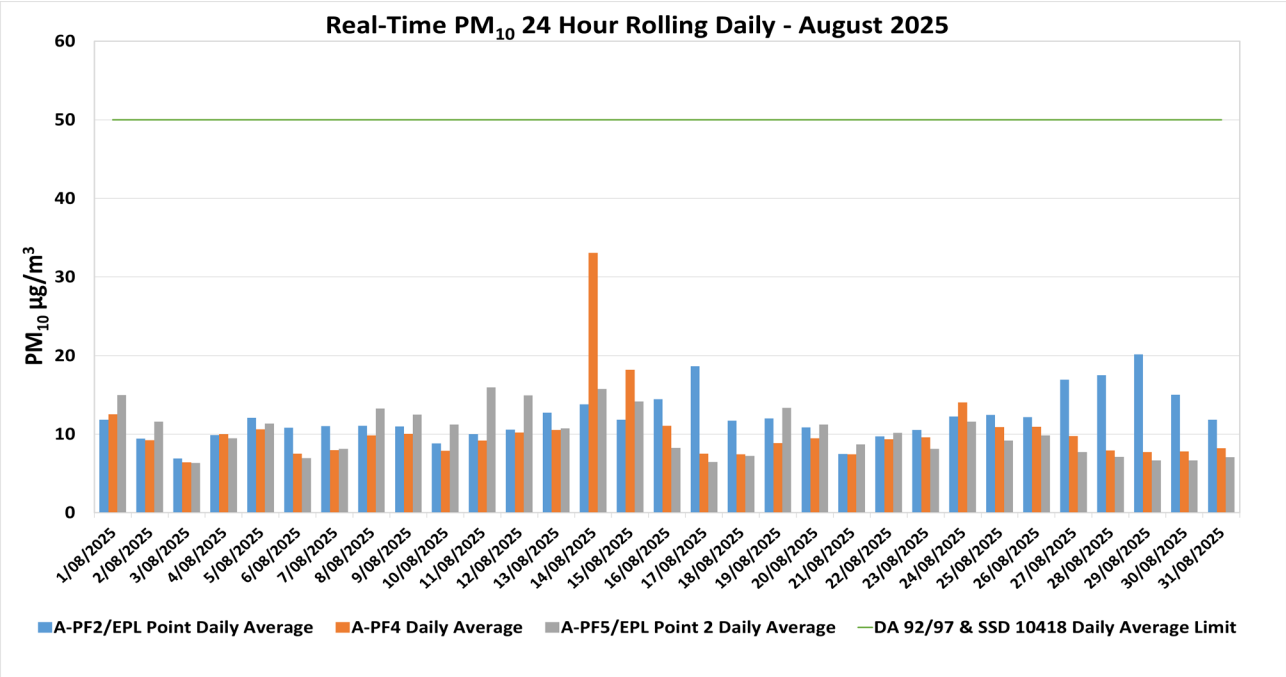

Figure 6-1: Real-time PM_{10} 24 Daily Average Results for August 2025.

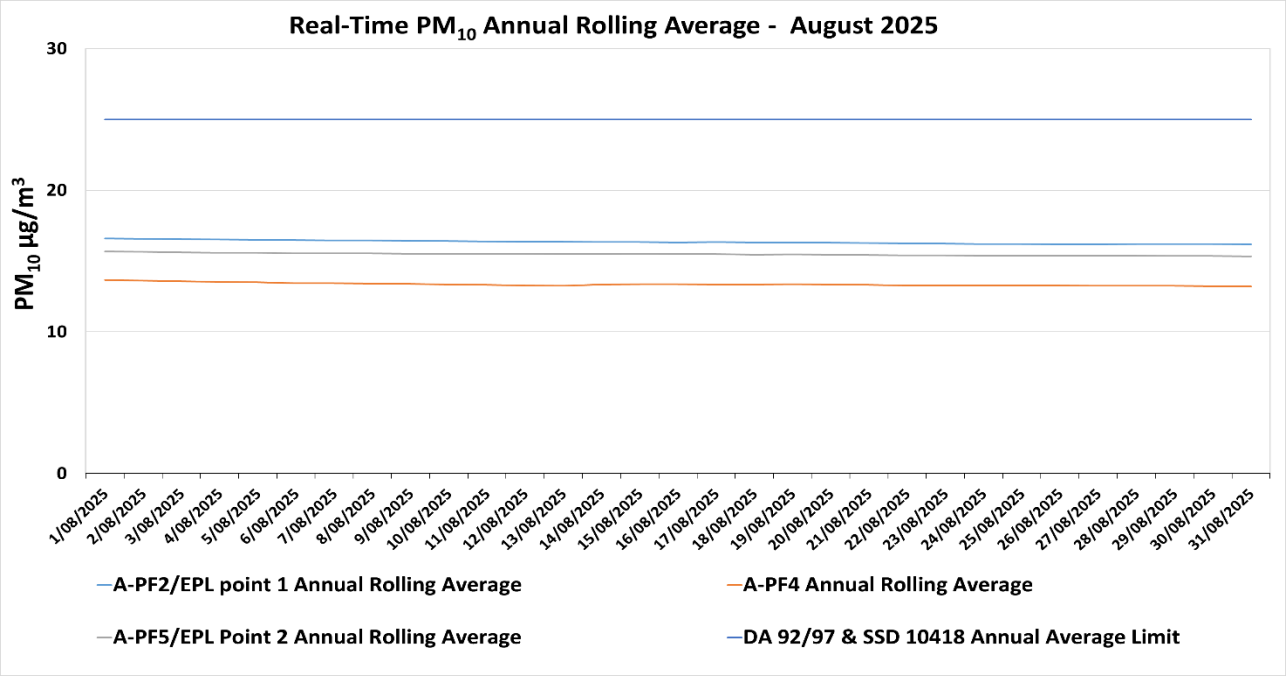

Figure 6-2: Real-time PM_{10} Annual Rolling Average Results for August 2025.

Table 6-2: MPO Palas Fidas $PM_{2.5}$ Data – August 2025

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			
01/08/2025	4.43	4.45	4.85	25
02/08/2025	4.16	4.02	4.55	25
03/08/2025	3.40	3.28	3.28	25
04/08/2025	4.44	4.51	4.34	25
05/08/2025	5.26	4.92	4.94	25
06/08/2025	3.93	3.43	3.34	25
07/08/2025	3.75	3.21	3.32	25
08/08/2025	4.67	4.34	5.23	25
09/08/2025	5.09	4.78	5.58	25
10/08/2025	4.15	3.84	4.83	25
11/08/2025	4.15	3.82	4.98	25
12/08/2025	5.07	4.67	4.95	25
13/08/2025	4.95	4.33	4.03	25
14/08/2025	4.64	6.56	4.25	25
15/08/2025	5.14	5.64	4.65	25
16/08/2025	5.24	4.63	3.88	25
17/08/2025	4.24	3.21	2.96	25
18/08/2025	3.59	3.18	3.01	25
19/08/2025	3.65	3.34	3.89	25
20/08/2025	4.40	4.32	4.51	25
21/08/2025	3.70	3.78	4.35	25
22/08/2025	5.07	4.92	5.17	25
23/08/2025	4.72	4.64	4.12	25
24/08/2025	4.39	4.67	4.05	25
25/08/2025	4.48	4.38	3.76	25
26/08/2025	4.21	4.01	3.42	25
27/08/2025	4.94	3.91	3.42	25
28/08/2025	4.15	3.39	3.19	25
29/08/2025	4.70	3.23	2.98	25
30/08/2025	3.77	3.10	2.87	25
31/08/2025	3.77	3.57	3.22	25

*Results in **bold** indicate an elevated measurement of adopted assessment criteria.*
Results with "- "indicate dates where data was affected by maintenance or servicing (scheduled and unscheduled)

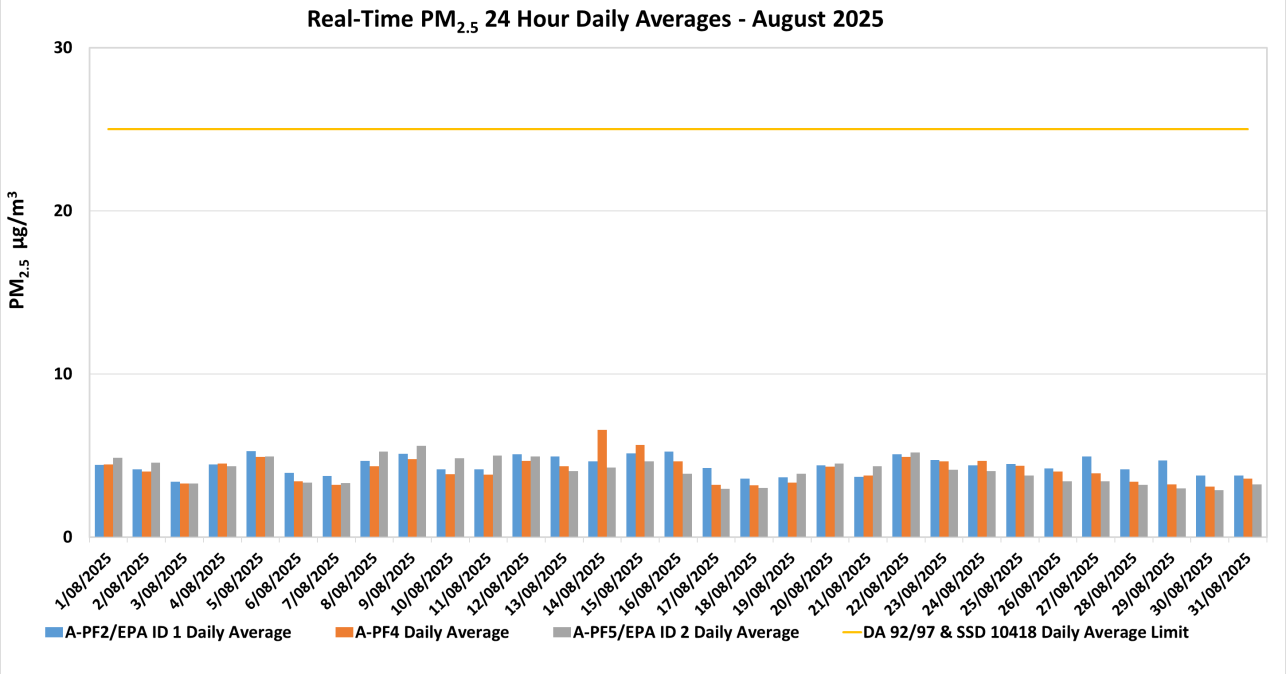

Figure 6-3: Real-time $PM_{2.5}$ 24 hour Daily Average Results for August 2025.

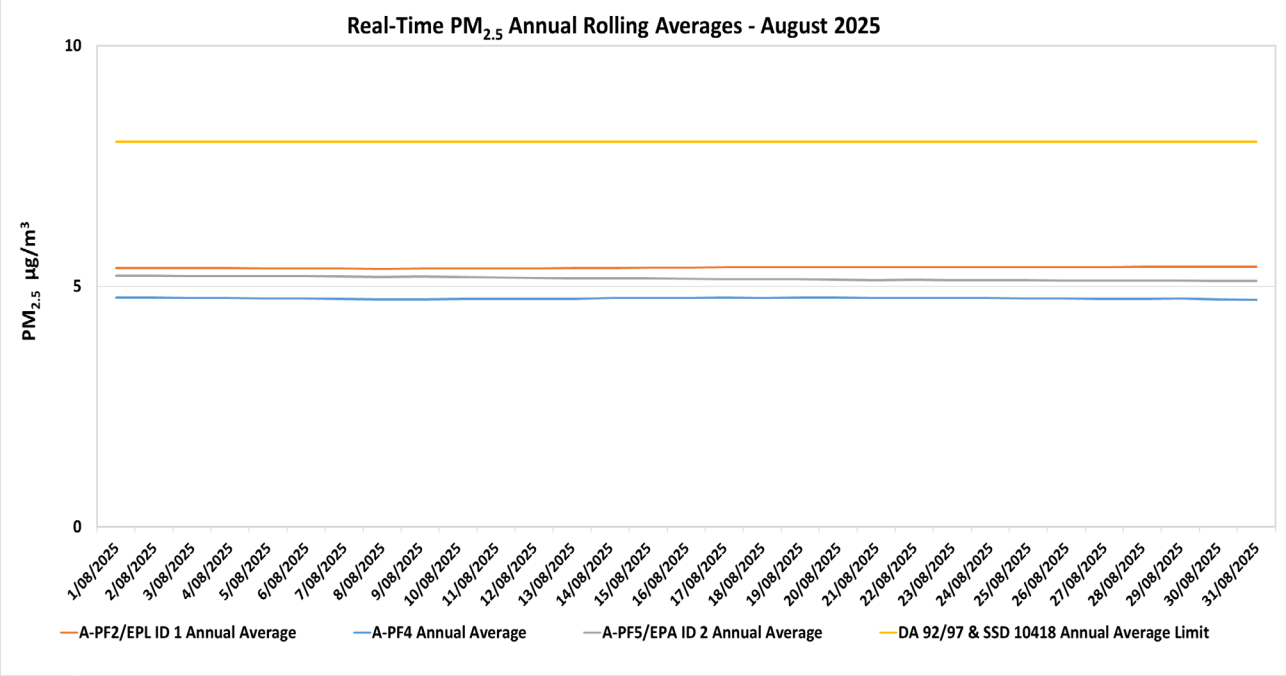

Figure 6-4: Real-time $PM_{2.5}$ Annual Rolling Average Results for August 2025.

7. Surface Water Monitoring

7.1 Methodology

Surface water quality is monitored at fourteen (14) 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, 2025) 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.

In accordance with the MPO Water Management Plan (WMP) Table 26 (MACH Energy, 2025) if a water quality indicator at a potential impact monitoring location or at a downstream receiving water monitoring location is above (or outside the range) of the site-specific trigger value for three consecutive sampling events an investigation is required.

7.3 Results

Surface water monitoring was conducted by AECOM during the monitoring period. 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 – 4 August 2025

Station	pH	Electrical Conductivity (EC) (µs/cm)[1]	Total Dissolved Solids (TDS) (mg/L)	Total Suspended Solids (TSS) (mg/L)
W1	7.4	194	195	**176**
W2	**	**	**	**
W3	7.4	199	214	145
W4	**	**	**	**
W5	6.4	140	186	36
W6A	**	**	**	**
W9	6.9	227	358	25
W11	**	**	**	**
W12	7.8	609	415	**89**
W13	7.8	352	336	44
W14	7.1	142	245	193
W15	7.8	306	246	**143**
W16	8.0	1692	1040	44
W17	**	**	**	**

*Note: Results in **bold** indicate exceedances of adopted assessment criteria.*
**Dry or insufficient water to sample.*
*** No access due to track conditions.*
**** Investigation Required*
[1] Results have been rounded in accordance with the In-house method Q4AN(EV)-332-WI2 (EC).

Table 7-2 – MPO Monthly Surface Water Monitoring Results – 21 August 2025

Station	pH	Electrical Conductivity (EC) (µs/cm)[1]	Total Dissolved Solids (TDS) (mg/L)	Total Suspended Solids (TSS) (mg/L)
W1	8.1	322	211	**23**
W2	**	**	**	**
W3	8.1	344	214	24
W4	7.8	958	568	7
W5	7.1	71	150	11
W6A	**	**	**	**
W9	7.3	75	230	73
W11	**	**	**	**
W12	**8.2**	315	253	**860**
W13	**	**	**	**
W14	7.2	177	159	47
W15	**	**	**	**
W16	**	**	**	**
W17	**	**	**	**

*Note: Results in **bold** indicate exceedances of adopted assessment criteria.*
**Dry or insufficient water to sample.*
*** No access due to track conditions.*
**** Investigation Required*
[1] Results have been rounded in accordance with the In-house method Q4AN(EV)-332-WI2 (EC).

8. Groundwater Monitoring

8.1 Methodology

Groundwater monitoring is conducted on a quarterly basis, in February, May, August and November.

8.2 Assessment Criteria

An investigation is triggered if elevated measurements occur for three consecutive sampling events in accordance MPO Water Management Plan (MACH Energy, 2022). An investigation was triggered (AGE, 2023) examining the cause of elevated EC values in the alluvial zone, specifically MPBH2. The data strongly suggests that the cause of the increase in EC is persistent above-average stage in the adjacent Hunter River, caused by above-average rainfall since 2020, which is causing a rise in groundwater levels in similar alluvial bores. Trigger values have since been reviewed and will be incorporated in future Water management plans.

8.3 Results

Water level results for the groundwater bores are presented in Table 8-1. The quarterly pH and EC results are presented in Table 8-2 and Table 8-3, respectively.

Table 8-1 - MPO Quarterly Groundwater Water Level Results

Monitoring Location/ ID	Water Level Trigger Range		August 2025 Water Level (DTW)	May 2025 Water Level (DTW)	February 2025 Water Level (DTW)	Triggered (Yes/ No)
	80th Percentile (DTW)	Trigger				
WRA1L	-	>± 0.5m	**1.77**	2.73	2.44	No
WRA1U	-	>± 0.5m	*	*	*	No
WRA3L-R**	-	>± 0.5m	*	*	*	No
WRA3U-R**	-	>± 0.5m	*	*	*	No
WRA5L-R**	-	>± 0.5m	^	*	*	No
WRA5U-R**	-	>± 0.5m	^	*	*	No
WRA6L	-	>± 0.5m	0.15	0.03	0.37	No
WRA6U	-	>± 0.5m	0.82	0.75	0.91	No
MPBH1	9.71	10.70	7.01	9.06	9.72	No
MPBH2	12.20	13.59	11.03	11.81	11.82	No
MPBH3b	13.04	Dry (or 14.0m)	10.56	11.68	11.89	No
MPBH4	-	>± 0.5m	**11**	**11.70**	12.19	No
MPBH5	-	>± 0.5m	*	*	*	No
MPBH1-C	-	>± 0.5m	6.863	^	9.623	No
MPBH1-HR	-	>± 0.5m	34.73	^	32.22	No
MPBH2-C	-	>± 0.5m	**11.063**	11.83	11.833	No
MPBH2-HR	-	>± 0.5m	**28.916**	11.87	11.856	No
MPBH4-C	-	>± 0.5m	**9.503**	10.41	10.913	No
MPBH4-HR	-	>± 0.5m	49.605	^	49.875	No
MPBH5-C	-	>± 0.5m	12.179	^	11.479	No
MPBH5-HR	-	>± 0.5m	11.11	^	11.52	No
MPBH6	-	>± 0.5m	8.391	8.85	9.44	No
MPBH6-C	-	>± 0.5m	9.738	10.18	10.848	No
MPBH6-HR	-	>± 0.5m	8.815	8.88	10.355	No
MPBH7	10.1	>± 0.5m	**4.327**	5.42	5.29	No
MPBH7-C	-	>± 0.5m	17.415	17.62	17.435	No
3500C500L	-	>± 0.5m	**27.11**	26.42	25.98	No
3500C500S	-	>± 0.5m	25.44	25.70	25.08	No
4500F000	-	>± 0.5m	22.09	^	22.34	No
5000D000-R	-	>± 0.5m	138.92	138.63	138.43	No
5500D000	-	>± 0.5m	**134.92**	134.32	Removed	No
6000C000L-R**	-	>± 0.5m	*	*	*	No
6000C000U-R**	-	>± 0.5m	*	*	*	No
6500F500L	-	>± 0.5m	52.16	52.10	50.48	No

Monitoring Location/ ID	Water Level Trigger Range		August 2025 Water Level (DTW)	May 2025 Water Level (DTW)	February 2025 Water Level (DTW)	Triggered (Yes/ No)
	80th Percentile (DTW)	Trigger				
6500F500M	-	>± 0.5m	52.61	52.77	52.49	No
6500F500U	-	>± 0.5m	**26.56**	31.74	31.8	No
6500F625	-	>± 0.5m	**14.45**	16.18	16.1	No
Melody	-	>± 0.5m	**10**	13.14	13.1	No
7500F000	-	>± 0.5m	36.51	36.55	36.36	No
GDE Bore Shallow**	-	>± 0.5m	*	*	*	No
GDE Bore Deep**	-	>± 0.5m	^	10.92	10.86	No
NE Alluvium**	-	>± 0.5m	*	*	^	No
East Alluvium**	-	>± 0.5m	*	*	*	No

Results in **bold** indicate that the bore has exceeded the adopted assessment criterion for changes in standing water level from the previous measurement.
* Dry/insufficient water to sample.
**New site.
^Unsafe access.

Table 8-2 - MPO Quarterly Groundwater pH Results

Monitoring Location/ ID	pH Trigger Range		August 2025 pH	May 2025 pH	February 2025 pH	Triggered (Yes/No)
	Lower	Upper				
WRA1L	6.0	8.5	7.4	7.1	7.1	No
WRA1U			*	*	*	No
WRA3L-R**			7.5	7.5	7.5	No
WRA3U-R**			*	*	*	No
WRA5L-R**			^	7.4	6.9	No
WRA5U-R**			^	7.5	7.5	No
WRA6L			7.5	7	7	No
WRA6U			6.8	6.9	6.9	No
MPBH1			7.3	6.9	7	No
MPBH2			6.7	6.8	6.9	No
MPBH3b			7.4	7.7	7.4	No
MPBH4			6.9	6.9	6.9	No
MPBH5			*	*	*	No
MPBH1-C			7.2	^	**8.7**	No
MPBH1-HR			7.6	^	8	No
MPBH2-C			8.1	7.4	**10.2**	No
MPBH2-HR			7.5	7.7	8.4	No
MPBH4-C			7.4	8	8	No
MPBH4-HR			7.4	^	7.2	No

Monitoring Location/ ID	pH Trigger Range		August 2025 pH	May 2025 pH	February 2025 pH	Triggered (Yes/No)
	Lower	Upper				
MPBH5-C			**11.1**	^	**9.1**	No
MPBH5-HR			7.6	^	7.4	No
MPBH6			7	7	7.1	No
MPBH6-C			7.2	7.2	7	No
MPBH6-HR			7	7.4	7.3	No
MPBH7			7.3	7.1	7	No
MPBH7-C			7.1	7.1	7.1	No
3500C500L			7.5	7.5	7.5	No
3500C500S			7.3	7.3	7.1	No
4500F000			6.8	^	6.8	No
5000D000-R			7.5	7.5	7.5	No
5500D000			*	*	Removed	No
6000C000L-R**			8.4	8.4	*	No
6000C000U-R**			*	*	*	No
6500F500L			7.2	7.2	7.2	No
6500F500M			7.2	7.2	7.3	No
6500F500U			6.8	6.8	6.8	No
6500F625			7	7	6.7	No
Melody			6.8	6.8	6.8	No
7500F000			7.8	7.8	7.7	No
GDE Bore Shallow**			*	*	*	No
GDE Bore Deep**			6.8	6.8	7.4	No
NE Alluvium**			*	*	^	No
East Alluvium**			*	*	*	No

** Dry/insufficient water to sample.*
***New site.*
^Unsafe access.
*An investigation is triggered when pH values are recorded outside the baseline range (20th – 80th percentile). Results shown in **bold** are outside of this range.*

Table 8-3 - MPO Quarterly Groundwater EC Results

Monitoring Location/ ID	Maximum Beneficial Use Trigger	August 2025 EC[1]	May 2025 EC[1]	Feb 2025 EC[1]	Triggered (Yes/No)
WRA1L	7800	2990	3120	3080	No
WRA1U	*	***	***	***	-
WRA3L-R**	*	7810	7500	***	-
WRA3U-R**	*	***	***	4800	-
WRA5L-R**	*	^	5070	4800	-

Monitoring Location/ ID	Maximum Beneficial Use Trigger	August 2025 EC[1]	May 2025 EC[1]	Feb 2025 EC[1]	Triggered (Yes/No)
WRA5U-R**	*	^	5980	***	-
WRA6L	7800	5540	6670	5880	No
WRA6U	22000	7760	8430	9010	No
MPBH1	800	576	604	675	No
MPBH2	930	**1083**	**1222**	**1247**	**Yes**
MPBH3b	7800	4480	5280	5920	No
MPBH4	7800	5470	5290	5620	No
MPBH5	*	***	***	***	-
MPBH1-C	*	612	^	1450	-
MPBH1-HR	*	1626	^	1580	-
MPBH2-C	*	1223	1363	1436	-
MPBH2-HR	*	1424	1113	1631	-
MPBH4-C	*	4870	4820	4950	-
MPBH4-HR	*	5240	^	5880	-
MPBH5-C	*	831	^	1042	-
MPBH5-HR	*	1149	^	842	-
MPBH6	*	989	1274	1230	-
MPBH6-C	*	2650	3770	2710	-
MPBH6-HR	*	1543	6150	1490	-
MPBH7	*	6690	7630	11480	-
MPBH7-C	*	10290	10220	10760	-
3500C500L	7800	3830	3820	3770	No
3500C500S	7800	5710	5610	6010	No
4500F000	22000	8620	***	8440	-
5000D000-R	*	5020	4500	4490	-
5500D000	7800	***	***	Removed	No
6000C000L-R**	*	4550	4760	4530	-
6000C000U-R**	*	***	***	***	-
6500F500L	7800	2470	2570	2530	No
6500F500M	7800	2770	2670	2780	No
6500F500U	7800	5300	5080	5120	No
6500F625	7800	987	4190	4480	No
Melody	*	914	6280	6140	-
7500F000	7800	6390	6290	6450	No
GDE Bore Shallow**	*	***	***	***	-
GDE Bore Deep**	*	12920	12850	11240	-
NE Alluvium**	*	***	***	^	-

Monitoring Location/ ID	Maximum Beneficial Use Trigger	August 2025 EC[1]	May 2025 EC[1]	Feb 2025 EC[1]	Triggered (Yes/No)
East Alluvium**	*	***	***	***	-

** Indicates no trigger limit identified*
*** New site*
**** Dry/insufficient water to sample*
^Unsafe access.
[1]Results have been rounded in accordance with the In-house method Q4AN(EV)-332-WI2 (EC).
An investigation is triggered when EC values recorded exceed the beneficial use quality range (as described in the GWMP) for three successive monitoring rounds. Results outside this range are shown in **bold.**

An investigation in February 2024, found that the frequent EC triggers for MPBH2 are a result of increased rainfall events. Further Investigations have been undertaken during 2025, in accordance with recommendations from Specialist Groundwater Consultants AGE, the *MPO Water Management Plan* (MACH Energy, 2025) has been revised to new recommended trigger levels for MPBH2. The revised MPO Water Management Plan was submitted to the Department of Planning Housing and Infrastructure in August 2025.

9. Noise Monitoring

9.1 Methodology

Attended noise monitoring was undertaken during the monitoring period at eight (8) monitoring locations as per the *MPO Noise Management Plan* (MACH Energy, 2024) in accordance with DA 92/97, SSD 10418 and EPL 20850.

9.2 Results

The results for nighttime attended noise monitoring 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 – 18 and 19 August 2025

Location	Start Date and Time	MPO Only $L_{A1,1min}$ dB[2,4]	Criterion dB	Wind Speed m/s Direction °	Criterion Applies[1]	Stability Class	Exceedance dB[3]
N-AT1	3:19am	IA	45	0.4 / 235	Yes	E	No
N-AT2	11:14pm	28	45	3.2 / 140	Yes	G	NA
N-AT3	12:43am	IA	45	2.2 / 113	Yes	E	No
N-AT4	2:09am	IA	45	0.5 / 224	Yes	F	No
N-AT5	2:50am	IA	45	0.3 / 222	Yes	E	No
N-AT6	3:42am	IA	45	0.6 / 283	Yes	E	No
N-AT7	1:33am	IA	45	2.1 / 124	Yes	F	NA
N-AT8	10:35pm	41	NA[2]	1.6 / 155	NA[6]	D	NA[2]

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.*
4. *IA = inaudible; and*
5. *Bold results indicate exceedance of criteria.*
6. *This is not a compliance monitoring location.*

Table 9-2 – $L_{Aeq,15min}$ Generated by MPO: Attended Night Monitoring – 18 and 19 August 2025

Location	Start Date and Time	MPO Only $L_{A1,1min}$ dB[2.4]	Criterion dB	Wind Speed m/s Direction °	Criterion Applies[1]	Stability Class	Exceedance dB[3]
N-AT1	3:19am	IA	37	0.4 / 235	Yes	E	No
N-AT2	11:14pm	24	35	3.2 / 140	Yes	G	NA
N-AT3	12:43am	IA	40	2.2 / 113	Yes	E	No
N-AT4	2:09am	IA	38	0.5 / 224	Yes	F	No
N-AT5	2:50am	IA	37	0.3 / 222	Yes	E	No
N-AT6	3:42am	IA	35	0.6 / 283	Yes	E	No
N-AT7	1:33am	IA	37	2.1 / 124	Yes	F	NA
N-AT8	10:35pm	37	NA[2]	1.6 / 155	NA[6]	D	NA[2]

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. *IA = inaudible; and*
4. *Bold results indicate exceedance of criteria.*
5. *This is not a compliance monitoring location.*

Table 9-3 – $L_{Aeq,\ period}$ Cumulative Noise: Attended Night Monitoring – 18 and 19 August 2025

Location	Start Date and Time	Measured Mining Only $L_{Aeq,\ period}$ dB[1,2,3]	Cumulative Noise Criterion LAeq dB	Exceedance dB
N-AT1	3:19am	37	40	No
N-AT2	11:14pm	24	40	NA
N-AT3	12:43am	IA	40	No
N-AT4	2:09am	26	40	No
N-AT5	2:50am	IA	40	No
N-AT6	3:42am	33	40	No
N-AT7	1:33am	IA	40	NA
N-AT8	10:35pm	41	NA[2]	NA[2]

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'.*
3. *NA in exceedance column means criterion was not applicable due to atmospheric conditions.*
4. *This is not a compliance monitoring location.*

10. Blast Monitoring

There were eleven (11) blast events (a total of 75 blasts YTD). Results are presented in **Table 10-1**. All blast results during this monitoring period were below the criteria stated in Schedule 3, Condition 10 of DA 92/97, Schedule 2; Condition B12 of SSD 10418; and L5 of EPL 20850.

Table 10-1 – MPO Blast Monitoring Results – August 2025

Day & Date Fired	Time Fired	BVOC Vibration (mm/s)	BVOC Overpressure (dBL)	BVO2 Vibration (mm/s)	BVO2 Overpressure (dBL)	Blast Fume Compliant
4/08/2025	12:30	0.250 mm/s	86.8 DBL	0.370 mm/s	89.3 DBL	Y
7/08/2025	10:34	0.550 mm/s	97.2 DBL	0.560 mm/s	94.4 DBL	Y
8/08/2025	13:05	0.370 mm/s	91.4 DBL	0.710 mm/s	88.4 DBL	Y
11/08/2025	12:01	0.250 mm/s	114.3 DBL	0.170 mm/s	94.1 DBL	Y
13/08/2025	13:28	0.080 mm/s	102.2 DBL	0.150 mm/s	73.2 DBL	Y
16/08/2025	09:01	0.350 mm/s	96 DBL	0.270 mm/s	102 DBL	Y
19/08/2025	14:44	0.550 mm/s	102.8 DBL	0.200 mm/s	92.8 DBL	Y
20/08/2025	14:58	0.500 mm/s	97.6 DBL	0.350 mm/s	88.9 DBL	Y
21/08/2025	11:18	0.310 mm/s	100.4 DBL	0.670 mm/s	91 DBL	Y
25/08/2025	15:47	0.080 mm/s	93.2 DBL	0.090 mm/s	97.3 DBL	Y
29/08/2025	09:54	0.420 mm/s	112.9 DBL	0.420 mm/s	108 DBL	Y

END OF REPORT