

**Mount Pleasant Operation
Monthly Environmental Monitoring Report**

May 2019

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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 operations, 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 *Planning 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 May 2019
Reporting Period End Date	31 May 2019
Date Data Received	1 July 2019

To view MPO EPL 20850 or DA 92/97 in full please refer to the link below.

<https://machenergyaustralia.com.au/mount-pleasant/documentation/>

2. Monitoring Requirements

The MPO EPL 20850 specifically requires the monitoring of:

- 2 x Palas Fidas or TEOM Particulate Monitor 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.

All monitoring is undertaken by a suitability qualified and experienced person.

The MPO Environmental Monitoring Network is shown in **Figure 2-1, Figure 2-2, Figure 2-3 and Figure 2-4.**

Figure 2-1 shows MPO attended noise monitoring assessment groups. **Figure 2-2** shows the MPO air quality monitoring network. **Figure 2-3** shows the MPO ground water monitoring network. **Figure 2-4** shows the MPO surface water monitoring network.

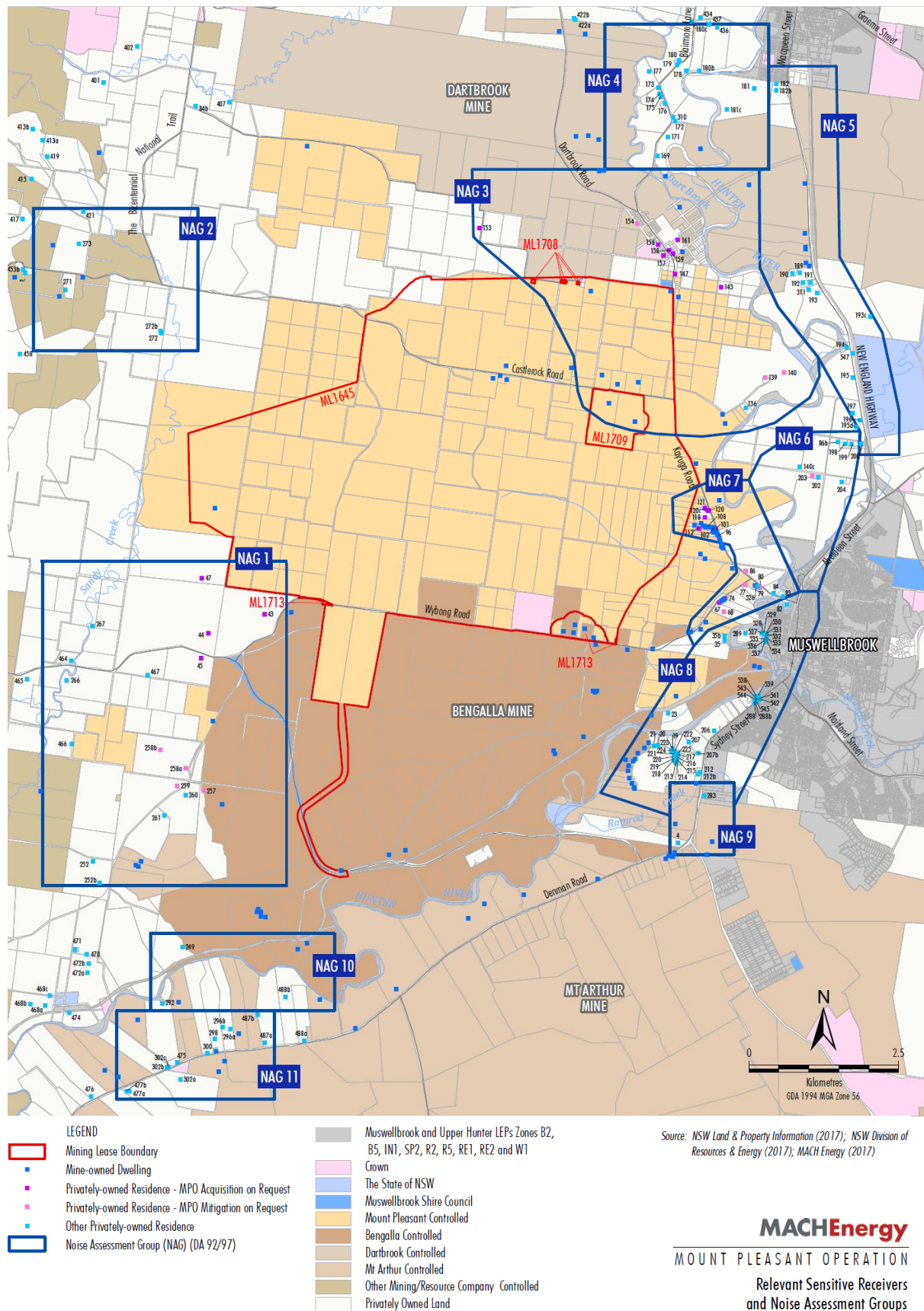


Figure 2-1 – MPO Attended Noise Monitoring Assessment Groups



- LEGEND**
- Mining Lease Boundary
 - Mine Owned
 - Privately-owned Residence - MPO 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

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

MACHEnergy
MOUNT PLEASANT OPERATION
Air Quality and Meteorological
Monitoring Sites

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

Note: Refer Figure 3 for geology legend

MOUNT PLEASANT OPERATION

Augmentations to the Groundwater Monitoring Network

Figure 2-3 – MPO Groundwater Monitoring Network

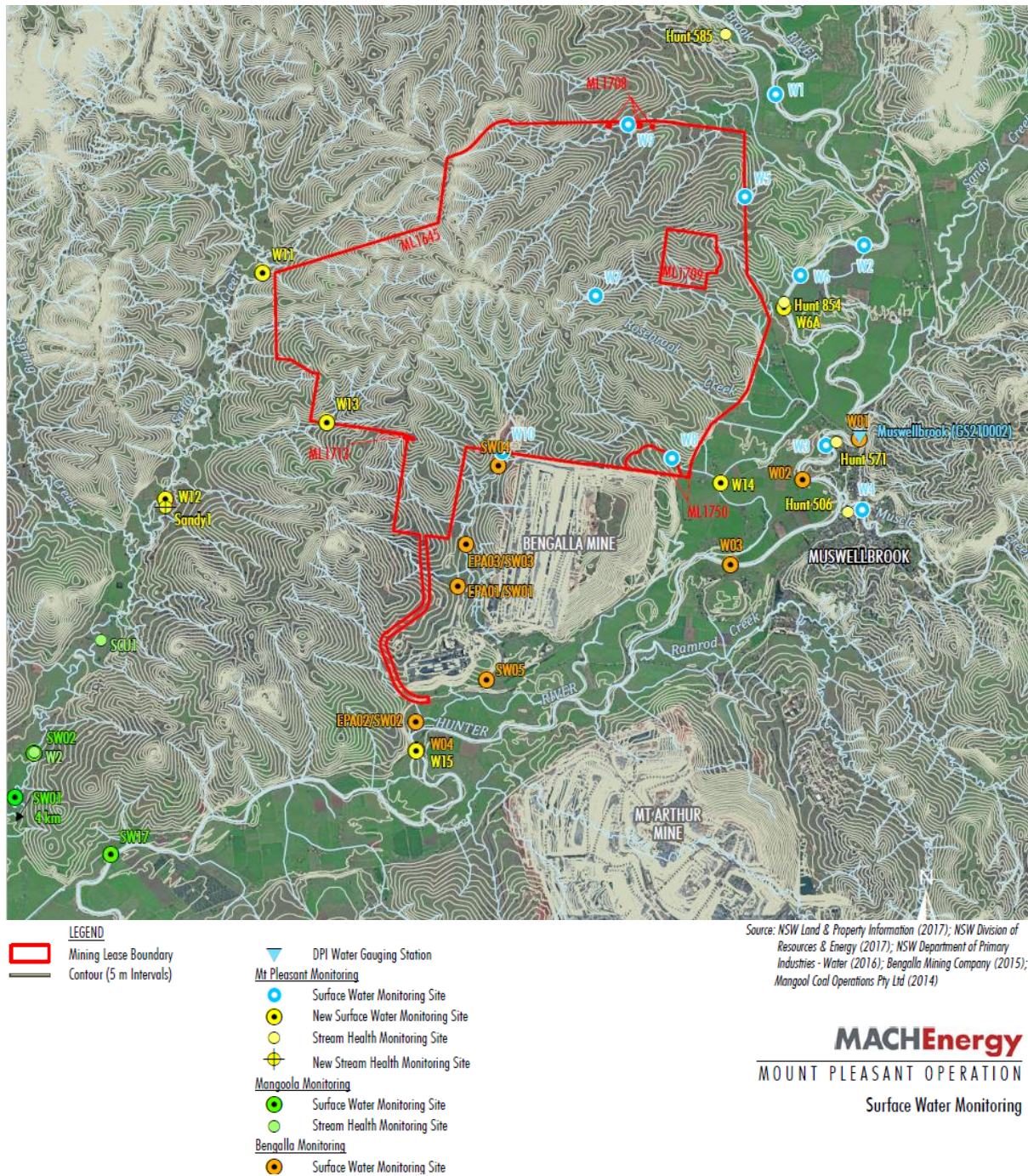


Figure 2-4 – MPO Surface Water Monitoring Network

3. Dust Depositional Monitoring

3.1 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.

3.2 Results

The dust deposition exposure period for all gauges commenced on 16 April 2019. Sample collection was undertaken on 17 May 2019 by AECOM with sample analysis performed by SRT, a NATA accredited laboratory. Results are summarised in **Table 3-1**.

Table 3-1: Dust Depositional Results – April 2019

Location	YTD Insoluble Solids (g/m ² .month)	Insoluble Solids Annual Rolling Average (g/m ² .month)
D1	2.2	1.9
D3	3.9	3.3
D4	2.5	2.1
D5	2.4	2.5
D6	3.8	3.2
D7 ¹	6.9	7.1
D8	5.1	4.4
D9	5.6	3.1

Location	YTD Insoluble Solids (g/m ² .month)	Insoluble Solids Annual Rolling Average (g/m ² .month)
D10	1.8	1.6
D11	3.6	2.7
D12	1.6	1.8
D13	2.6	2.8
D14	4.4	4.2
Criterion	-	4
<i>Note: Results in bold indicate elevated reading of adopted assessment criteria</i> <i>**Indicates result unavailable due to contaminated depositional dust gauges for YTD</i>		

Note 1: Site D7 is located within close proximity to the northern boundary of a neighbouring mining company's main pit and thus is heavily influenced by this. This site will continue to be monitored, however will not be used to assess compliance or to represent residential receivers in the area.

Contaminated results are not included in the 12 month rolling average. An elevated reading above the EPA annual average criterion for dust deposition (insoluble solids) was recorded at site D7a (7.1 g/m².month), D8 (4.4 g/m².month), and D14 (4.2 g/m².month). Site D7 is located within close proximity to the northern boundary of a neighbouring mining operation and thus is heavily influenced by this. This site will continue to be monitored, however will not be used to assess compliance or to represent residential receivers in the area. Sites D8 and D14 are located within close proximity to the MPO mining operations and are influenced by activities within this area.

Field notes from the May sampling event noted that all the gauges contained insects, five contained bird droppings, and two contained vegetation matter.

Figure 3-1 compares the monthly insoluble solids results to the annual averages for each dust gauge and the assessment criterion.

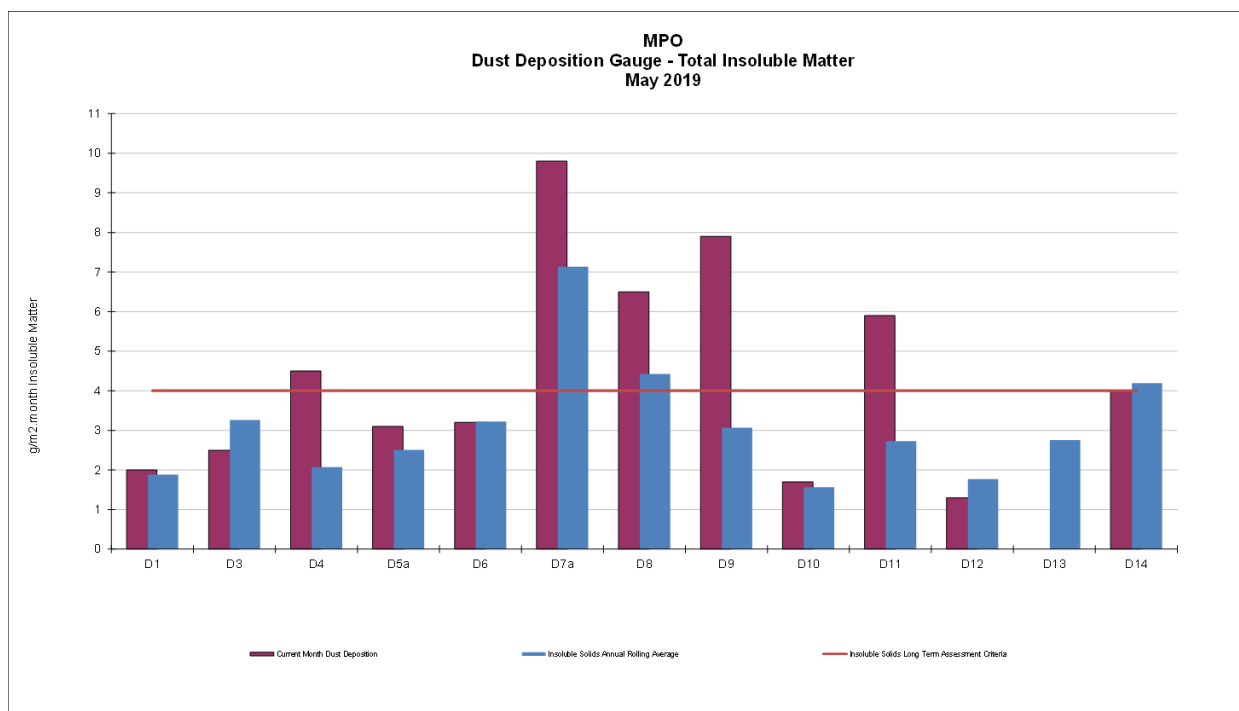


Figure 3-1: MPO Dust Deposition Monthly Result and Annual Rolling Average – May 2019

The results from **Figure 3-1** show an elevated reading of dust deposition annual rolling averages at sites D7a, D8, and D14 for May 2019. These results are due to the location of these monitors. Figure 2-2 shows these sites are within close proximity to a neighbouring mining operation and current Mount Pleasant operations, and do not represent residential receptors. The dust deposition monitoring program is currently under review and may potentially be updated based on this review.

4. 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 4-1** below. These units were commissioned in March 2017.

Table 4-1 Total suspended Particulate Monitoring Sites

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

4.1 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 EPA specifies an annual average criterion of 90 µg/m³.

4.2 Results

In May 2019 sample collection was undertaken by AECOM with sample analysis performed by SRT, a NATA accredited laboratory. TSP results for the monitoring period are provided in Table 4-2.

Table 4-2 Total Suspended Particulate Monitoring Data – May 2019

Run Date	Assessment Criterion	TSP µg/m ³		
		HVAS A-PF2	HVAS M-WS4	HVAS A-PF5
02/05/2019	-	100	85	54
08/05/2019	-	81	19	21
14/05/2019	-	56	33	23
20/05/2019	-	62	31	19
26/05/2019	-	105	20	16
Monthly Mean	-	81	38	27
Annual Rolling Average	90	90	45	46

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

4.3 Discussion

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

5. Real Time PM₁₀ 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 (one utilised for management only) units at MPO during May 2019.

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. The third unit at A-PF4 is currently under maintenance, and has been temporarily replaced by a TEOM unit for the May 2019 monitoring period.

5.1 PM₁₀ Results – 24 hour rolling average

During the May 2019 monitoring period there were no elevated readings measured in accordance with the DA 92/97 limit of 50 µg/m³ for the 24 hour rolling average, nor were there elevated readings measured at the Muswellbrook NW monitor in accordance with EPL 20850 for 'adverse dust conditions' (44 µg/m³) for the 24 hour rolling average. The Muswellbrook NW monitor was operational during all days of May 2019.

Real time PM₁₀ 24 hour rolling average results for May 2019 are presented in **Figure 5-1** below.

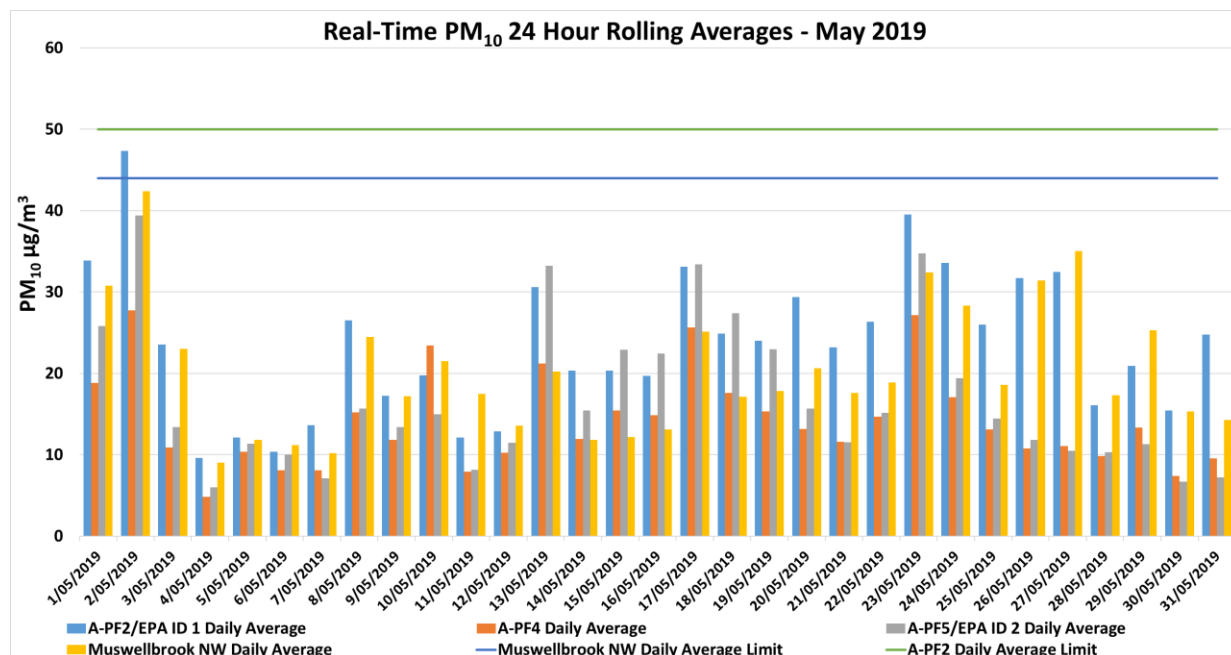


Figure 5-1: Real-time PM₁₀ 24 hour rolling average results for May 2019.

Figure 5-1 shows the results of real-time PM₁₀ 24 hour rolling average results at MPO air quality monitoring sites for May 2019.

Real time PM₁₀ 24 hour rolling average results for May 2019 are presented in **Table 5- 1**.

Table 5-1: MPO Palas Fidas PM₁₀ Data – May 2019

Date	A-PF2/EPA ID 1	A-PF4	A-PF5/EPA ID 2	Muswellbrook NW	A-PF2 24 Hour Average Limit (µg/m³)	Muswellbrook NW 24 Hour Average Limit (µg/m³)
	24 hour Average Result					
1/05/2019	34	19	26	31	50	44
2/04/2019	47	28	39	42	50	44
3/05/2019	24	11	13	23	50	44
4/05/2019	10	5	6	9	50	44
5/05/2019	12	10	11	12	50	44
6/05/2019	10	8	10	11	50	44
7/05/2019	14	8	7	10	50	44
8/05/2019	26	15	16	25	50	44
9/05/2019	17	12	13	17	50	44
10/05/2019	20	23	15	22	50	44
11/05/2019	12	8	8	18	50	44
12/05/2019	13	10	11	14	50	44
13/05/2019	31	21	33	20	50	44
14/05/2019	20	12	15	12	50	44

15/05/2019	20	15	23	12	50	44
16/05/2019	20	15	22	13	50	44
17/05/2019	33	26	33	25	50	44
18/05/2019	25	18	27	17	50	44
19/05/2019	24	15	23	18	50	44
20/05/2019	29	13	16	21	50	44
21/05/2019	23	12	12	18	50	44
22/05/2019	26	15	15	19	50	44
23/05/2019	40	27	35	32	50	44
24/05/2019	34	17	19	28	50	44
25/05/2019	26	13	14	19	50	44
26/05/2019	32	11	12	31	50	44
27/05/2019	32	11	11	35	50	44
28/05/2019	16	10	10	17	50	44
29/05/2019	21	13	11	25	50	44
30/05/2019	15	7	7	15	50	44
31/05/2019	25	10	7	14	50	44

Note: Results in bold indicate elevated readings during adverse weather conditions. MPO was not required to execute dust delays/shutdowns of operations and a halt to dust generating activities under the EPL 20850 or DA 92/97 consent conditions in May 2019.

5.2 PM₁₀ Results – Annual rolling average

Elevated readings have been measured for annual rolling average of PM₁₀ data collected since the amendment of the limit from 30 µg/m³ to 25 µg/m³ during approval of Modification 3 (MOD 3) of DA 92/97, dated 24 August 2018. MPO is currently in the process of undergoing a data validation and compliance review of this data for the 2019 calendar year.

Real time PM₁₀ annual rolling averages for May 2019 are presented in **Figure 5-2** below.

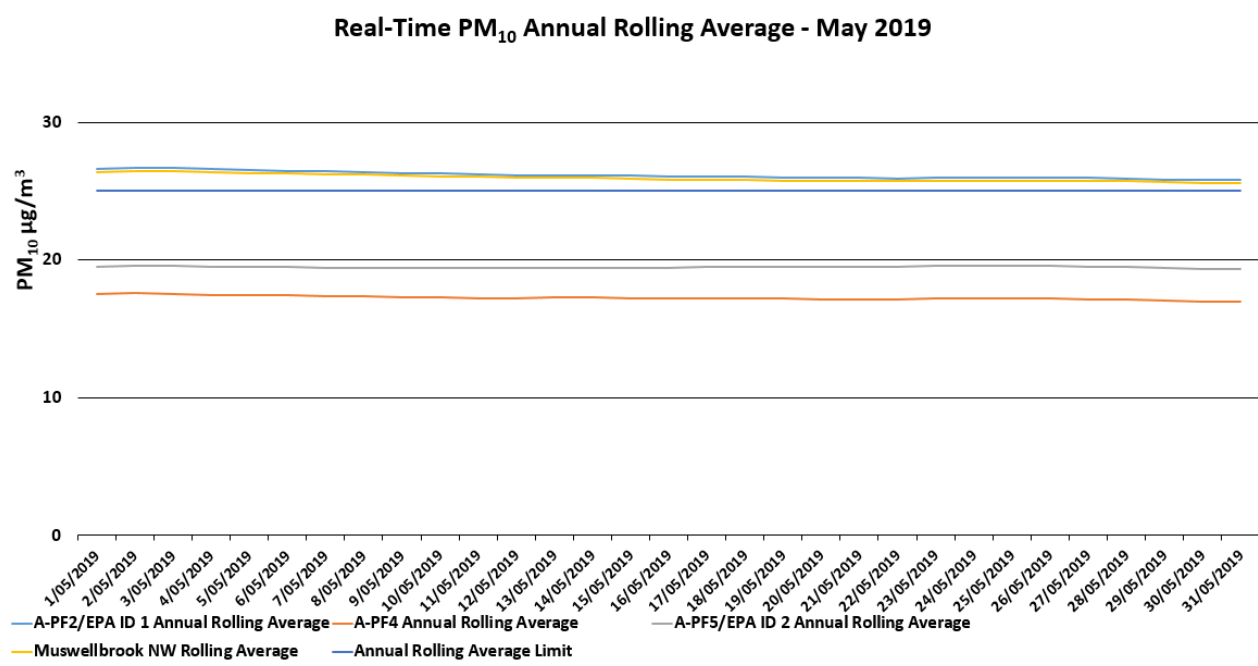


Figure 5-2: Real-time PM₁₀ Annual Rolling average results for May 2019.

5.3 PM_{2.5} Results – 24 hour rolling average

During the May 2019 monitoring period there were no elevated readings measured in accordance with the DA 92/97 limit of 25 µg/m³ for the 24 hour rolling average.

Real time PM_{2.5} daily average results for May 2019 are presented in **Figure 5-3** below.

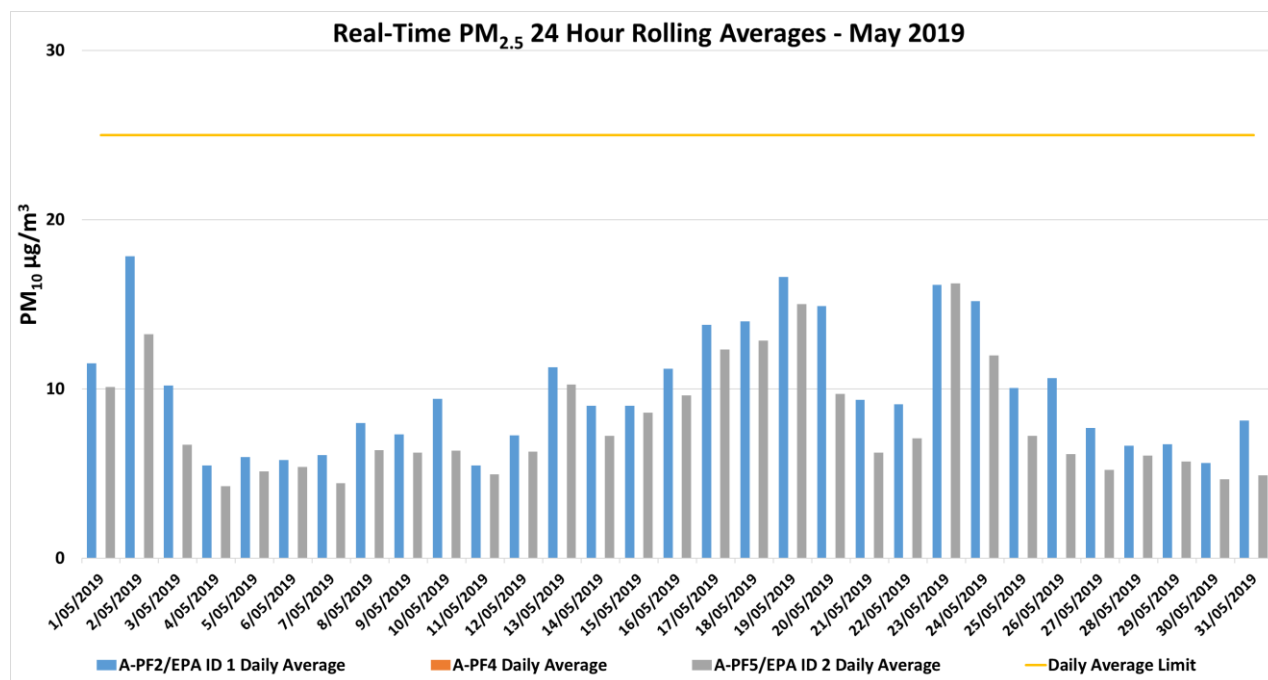


Figure 5-3: Real-time PM_{2.5} Daily Rolling average results for May 2019.

5.4 PM_{2.5} Results - Annual rolling average

The requirement of annual rolling average of PM_{2.5} data was incepted during MOD 3 of DA 92/97, dated 24 August 2018. Insufficient data as of May 2019 has been collected to calculate the annual rolling average.

6. Surface Water Monitoring

6.1 Methodology

Surface water quality is monitored at 13 sites on a monthly basis, with additional monitoring conducted if triggered by a rain event. A comprehensive suite of analysis is performed at these sites on a quarterly basis.

6.2 Assessment Criteria

Surface waters were assessed 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.

6.3 Results

Monthly and rain event surface water monitoring was conducted by AECOM on 6 May 2019. Laboratory analysis was performed by SRT and SGS, both NATA accredited laboratories. Monthly monitoring results for pH, EC, TSS and TDS are presented in **Table 6-1**.

Table 6-1 – MPO Monthly Surface Water Monitoring Results – 26 April 2019

Station	pH	Electrical Conductivity (EC) (µs/cm) ¹	Total Suspended Solids (TSS) (mg/L)	Total Dissolved Solids (TDS) (mg/L)
W1	8.2	390	14	221
W2	8.0	430	7	244
W3	8.0	380	18	249
W4	7.6	1350	5	792
W5	*	*	*	*
W6	8.0	400	13	264
W7	*	*	*	*
W9	*	*	*	*
W11	7.6	5900	7	3660
W12	7.8	4200	4	2420
W13	*	*	*	*
W14	*	*	*	*
W15	8.0	390	14	255

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

*Dry or insufficient water to sample.

** 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).

Five of the thirteen monitoring locations were found to be dry on 6 May 2019. All sites sampled were below or inside the trigger level values.

7. Groundwater Monitoring

Quarterly and annual groundwater monitoring was conducted during 1, 2, 3, 7 and 21 May 2019. Water level results for the groundwater bores are presented in **Table 7-1**. The quarterly pH and EC results are presented in **Table 7-2** and **Table 7-3**, respectively. The results reported for analytical data collected during the annual groundwater monitoring is currently under review.

Table 7-1 - MPO Quarterly Groundwater Water Level Results

Monitoring Location/ ID	Water Level Trigger Range		Current Month Water Level (DTW)	February 2019 Water Level (DTW)	Triggered (Yes/No)
	80 th Percentile (DTW)	Trigger			
WRA1L	-	± 0.5m	5.88	5.40	
WRA1L	-	± 0.5m	6.06	5.88	
WRA1U	-	± 0.5m	*	*	
WRA3L	-	± 0.5m	16.56	16.92	
WRA3U	-	± 0.5m	4.03	4.04	
WRA5L***	-	± 0.5m	0.00	-	
WRA5U***	-	± 0.5m	0.71	-	
WRA6L	-	± 0.5m	2.34	2.84	
WRA6U	-	± 0.5m	3.93	4.30	
MPBH1	9.71	10.70	9.79	9.90	No
MPBH2	12.20	14.20	12.46	12.53	No
MPBH3b	12.00	Dry (or 13.6m)	12.36	12.42	No
MPBH4	-	± 0.5m	11.17	11.35	
MPBH5	-	± 0.5m	*	8.82	
3500C500 (L)	-	± 0.5m	57.31	57.17	
3500C500 (S)	-	± 0.5m	26.10	25.99	
4500F000	-	± 0.5m	28.90	28.00	
5000D000	-	± 0.5m	85.92	84.76	
5500D000	-	± 0.5m	68.97	67.48	
6500F500L	-	± 0.5m	52.81	52.93	
6500F500M	-	± 0.5m	54.43	54.55	
6500F500U	-	± 0.5m	*	35.38	
6500F625	-	± 0.5m	15.70	22.33	
Melody	-	± 0.5m	12.35	21.54	
7000D000L	-	± 0.5m	19.05	19.18	
7000D000U	-	± 0.5m	6.04	6.41	
7500F000	-	± 0.5m	36.16	36.13	

* Dry/insufficient water to sample

** Bore appeared to be blocked

*** New site

An investigation is triggered when the water levels in any alluvial bores exceed the 80th percentile and/or trigger level. Results shown in **bold** indicate that the bore has exceeded the adopted assessment criterion for changes in standing water level of ± 0.5m from the previous measurement.

Table 7-2 - MPO Quarterly Groundwater pH results

Monitoring Location/ ID	pH Trigger Range		Current Month pH	Feb 2019 pH	Nov 2018 pH	Triggered (Yes/No)
	20 th Percentile	80 th Percentile				
WRA1L	7.30	7.74	6.9	6.9	7.1	Yes
WRA1U	^	^	*	*	*	
WRA3L	6.60	6.90	6.8	6.6	6.8	No
WRA3U	7.10	7.60	7.2	7.4	7.2	No
WRA5L***	7.1	7.8	7.3	-	-	-
WRA5U***	7.1	7.4	7.4	-	-	-
WRA6L	7.20	7.70	6.9	6.9	6.8	Yes
WRA6U	6.80	7.00	6.9	6.7	6.6	No
MPBH1	6.80	7.10	6.9	7.0	6.8	No
MPBH2	6.80	7.10	6.7	6.9	6.8	No
MPBH3b	7.40	7.60	7.5	7.7	7.5	No
MPBH4	^	^	6.8	7.0	-	-
MPBH5	^	^	*	*	-	-
3500C500 (L)	7.28	7.50	7.3	7.3	7.3	No
3500C500 (S)	^	^	7.0	6.9	6.9	No
4500F000	6.50	6.90	6.8	6.8	6.8	No
5000D000	6.60	6.98	6.9	6.9	6.9	No
5500D000	6.30	6.80	7.0	7.0	7.1	Yes
6500F500L	6.52	6.80	7.1	7.2	7.2	Yes
6500F500M	6.90	7.20	7.1	7.1	7.3	No
6500F500U	6.82	6.98	*	*	7.1	No
6500F625	6.8	7.1	6.8	6.9	6.7	No
Melody	^	^	6.9	7.1	6.9	No
7000D000L	6.60	6.80	6.7	6.7	6.5	No
7000D000U	6.60	7.70	6.5	6.6	6.5	No
7500F000	6.70	7.20	7.6	7.7	7.7	Yes

* Dry/insufficient water to sample

** Bore appeared to be blocked

*** New site

- indicated no trigger limit identified

An investigation is triggered when pH values are recorded outside the baseline range (20th – 80th percentile) for three consecutive readings. Results outside this range are shown in **bold**.

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 7-3 - MPO Quarterly Groundwater EC results

Monitoring Location/ ID	EC Trigger Range		Current Month EC	Feb 2019 EC	Nov 2018 EC	Triggered (Yes/No)
	80 th Percentile	Maximum Beneficial Use Trigger				
WRA1L	4500	7800	4150	4500	4200	No
WRA1U	^	^	*	*	*	
WRA3L	16710	22000	15800	16600	16200	No
WRA3U	9032	22000	7200	4700	10000	No
WRA5L***	7038	7800	2700	-	-	-
WRA5U***	4772	7800	2450	-	-	-
WRA6L	5950	7800	6050	5700	5500	No
WRA6U	11140	22000	11000	10900	10500	No
MPBH1	590	800	450	460	460	No
MPBH2	930	930	810	810	850	No
MPBH3b	4544	7800	3400	3750	2500	No
MPBH4	^	^	5200	5150	-	-
MPBH5	^	^	*	*	-	-
3500C500 (L)	4478	7800	4000	4100	4000	No
3500C500 (S)	^	^	4600	4500	4250	No
4500F000	3646	7800	9400	8800	9000	Yes
5000D000	710	800	790	760	760	No
5500D000	1099	2350	3900	4000	4350	Yes
6500F500L	1406	2350	3500	3650	3500	Yes
6500F500M	1918	2350	2800	2950	3000	Yes
6500F500U	5814	7800	*	*	5100	No
6500F625	^	^	3150	3950	3800	No
Melody	^	^	1000	2600	2500	No
7000D000L	1146	2350	2000	1550	1500	No
7000D000U	6688	7800	5850	6150	6350	No
7500F000	3908	7800	6250	6300	6300	No

* Dry/insufficient water to sample

** Bore appeared to be blocked

*** New site

^ indicated no trigger limit identified

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**.

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).

Several groundwater monitoring sites were outside of the EC and/or pH triggers, and as such an investigation is ongoing for these sites. All other sites complied with trigger levels.

The next quarterly monitoring event is scheduled for August 2019.

8. Noise Monitoring

Attended noise monitoring was undertaken during the night period of 22 May 2019 at seven monitoring locations in accordance with the EPL and MPO Noise Management Plan.

8.1 Results

The results for night time attended noise monitoring for noise generated by MPO in May 2019 against noise criteria is shown in **Table 8-1**.

Table 8-1 – $L_{Aeq,15min}$ Generated by MPO Night-Time Monitoring – 17 April 2019

Location	Start Date and Time	Wind Speed m/s	Stability Class	Criterion dB	Criterion Applies ¹	MPO Only L_{Aeq} dB ^{2,4,5}	Exceedance dB ^{3,4}
N-AT1	22/05/19 22:24	0.8	D	40	Yes	Not measurable	Nil
N-AT2	22/05/19 22:00	1.1	D	36	Yes	Inaudible	Nil
N-AT3	22/05/19 22:53	1.1	F	35	Yes	Inaudible	Nil
N-AT4	22/05/19 23:17	0.5	F	42	Yes	Inaudible	Nil
N-AT5	22/05/19 22:54	1.1	F	40	Yes	Inaudible	Nil
N-AT6	22/05/19 22:35	1.7	D	35	Yes	Inaudible	Nil
N-AT7	22/05/19 22:30	0.8	D	40	Yes	Inaudible	Nil

Notes:

- 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 atmospheric conditions outside those specified in the project approval and so criterion is not applicable; and
- Bold results in red indicate exceedance of criteria.

The survey purpose is to quantify and describe the existing acoustic environment around the mine project and compare results with relevant limits. Noise levels from MTP complied with noise limits at all monitoring locations during the May 2019 monitoring period.

9. Blast Monitoring

Results for May 2019 are presented in **Table 9-1**.

Table 9-1 – MPO Blast Monitoring Results – May 2019

Date Fired	Time Fired	Vibration BVOA	Overpressure BVOA	Vibration BVOC	Overpressure BVOC	Vibration BVO2	Overpressure BV02
4/1/19	13:28	0.900 mm/s	90.9 DBL	0.280 mm/s	98.9 DBL	0.390 mm/s	99 DBL
9/1/19	15:15	0.730 mm/s	97.4 DBL	0.420 mm/s	92.6 DBL	0.510 mm/s	100.9 DBL
10/1/19	14:30	0.07 mm/s	107.9 DBL	0.03 mm/s	102.9 DBL	0.51 mm/s	99.3 DBL
16/1/19	14:30	2.660 mm/s	100.3 DBL	1.480 mm/s	93 DBL	1.860 mm/s	102.9 DBL
18/1/19	10:15	3.700 mm/s	101.4 DBL	2.480 mm/s	99.2 DBL	0.280 mm/s	85.5 DBL
23/1/19	13:52	0.670 mm/s	99.3 DBL	0.380 mm/s	103.6 DBL	0.880 mm/s	107.9 DBL
01/02/19	13:14	1.350 mm/s	106 DBL	0.970 mm/s	114.9 DBL	1.190 mm/s	105.1 DBL
07/02/19	13:00	0.600 mm/s	97.4 DBL	0.320 mm/s	87.5 DBL	0.630 mm/s	105 DBL
13/02/19	13:01	1.590 mm/s	100.5 DBL	0.550 mm/s	90.9 DBL	1.910 mm/s	103.5 DBL
21/02/19	15:01	0.390 mm/s	105.2 DBL	0.440 mm/s	96.9 DBL	1.020 mm/s	105.8 DBL
28/02/19	15:21	1.270 mm/s	98.1 DBL	0.800 mm/s	97.6 DBL	2.050 mm/s	104.0 DBL
8/03/2019	10:13	0.920 mm/s	101.2 DBL	0.460 mm/s	94.6 DBL	0.580 mm/s	110.2 DBL
15/03/19	13:16	1.240 mm/s	108 DBL	0.760 mm/s	99.2 DBL	1.510 mm/s	111.3 DBL
20/03/19	13:06	1.100 mm/s	99 DBL	0.320 mm/s	95.2 DBL	0.700 mm/s	104.5 DBL
22/03/19	12:48	0.950 mm/s	92.7 DBL	0.650 mm/s	91.4 DBL	0.890 mm/s	101 DBL

29/03/19	09:36	0.340 mm/s	96.5 DBL	0.140 mm/s	95.5 DBL	0.710 mm/s	106.3 DBL
29/03/19	09:36	0.340 mm/s	96.5 DBL	0.140 mm/s	95.5 DBL	0.710 mm/s	106.3 DBL
4/04/2019	13:00	0.320 mm/s	107.6 DBL	0.110 mm/s	104.8 DBL	0.360 mm/s	109 DBL
11/04/2019	13:01	0.460 mm/s	99.6 DBL	0.290 mm/s	99.4 DBL	0.820 mm/s	100.5 DBL
17/04/2019	13:06	0.780 mm/s	96.5 DBL	0.800 mm/s	92.9 DBL	3.820 mm/s	107 DBL
2/5/2019	13:06	0.740 mm/s	101.6 DBL	0.650 mm/s	94.2 DBL	3.070 mm/s	113.4 DBL
3/5/2019	11:05	0.920 mm/s	95.3 DBL	0.950 mm/s	90.9 DBL	2.720 mm/s	106.9 DBL
9/5/2019	13:15	0.910 mm/s	95 DBL	0.730 mm/s	92.6 DBL	1.760 mm/s	103.4 DBL
14/5/2019	13:26	0.360 mm/s	99.3 DBL	0.310 mm/s	101.8 DBL	1.110 mm/s	109.5 DBL
22/5/2019	13:05	0.170 mm/s	97.2 DBL	0.220 mm/s	93.4 DBL	0.380 mm/s	100.3 DBL
23/5/2019	13:02	0.100 mm/s	85.5 DBL	0.050 mm/s	86.8 DBL	0.270 mm/s	93.6 DBL
28/5/2019	09:37	1.170 mm/s	103.2 DBL	0.460 mm/s	103.6 DBL	0.810 mm/s	109.8 DBL
30/5/2019	13:14	0.580 mm/s	101.1 DBL	0.200 mm/s	106.4 DBL	1.070 mm/s	104 DBL

Blast results complied with all criteria at each monitoring site in May 2019.

10. Meteorological Monitoring

Weather data is measured continuously at the Kayuga Road meteorological station (M-WS4). In addition to air quality parameters, the weather station also measures wind speed and direction, temperature (at 2 m and 10 m), solar radiation, relative humidity, rainfall, atmospheric pressure, and sigma theta. All data was captured during May 2019.