



Maxwell Infrastructure
Environmental Monitoring Data
Quarter 1 2018

1. Introduction

Maxwell Infrastructure (formerly Drayton Mine) is owned by Malabar Coal. This report has been compiled to present environmental monitoring data for Maxwell Infrastructure in accordance with Schedule 5, Condition 11 (b) and (c) of Project Approval 06_0202.

This report covers the reporting period of January to March 2018. Summaries of historic environmental monitoring data (prior to 2018) can be found in the Annual Environmental Management Reports located on the Malabar Coal website (<http://malabarcoal.com.au/maxwell-infrastructure-downloads>).

2. Monitoring Results

Depositional dust monitoring results are provided in Table 1.

High volume air sampler monitoring results are provided in Table 2.

Continuous TEOM PM₁₀ monitoring results are provided in Figure 1.

Surface water quality monitoring results are provided in Table 3.

Noise monitoring results are provided in Table 4, 5 and 6.

Table 1: Depositional dust monitoring results for Quarter 1.

Air Quality Monitoring – Depositional Dust					
Gauge	Insoluble Solids Result (g/m²/month)			Annual Mean (YTD) (g/m²/month)	Annual Mean Limit (g/m²/month)
	January	February	March		
2197	2.2	3.5	2.5	2.7	4.0
2230	3.4	3.1	1.9	2.8	4.0
2157	4.4	3.3	2.6	3.4	4.0
2208	3.0	3.0	1.6	2.5	4.0
2247	3.5	2.7	3.2	3.1	4.0
2235	3.6	3.5	1.9	3.0	4.0
2175	2.9	2.2	1.9	2.3	4.0
2130	3.5	3.6	1.7	2.9	4.0

Table 2: Total suspended particulates – High volume air sampler (HVAS) Lot 22 results for Quarter 1.

Air Quality Monitoring – Total Suspended Particulates (TSP) – Lot 22			
Date	TSP Result	Annual Mean (12 month Rolling Average)	Annual Mean Limit
1 Jan 18	78	52	90 (12 month rolling average)
7 Jan 18	134	54	
13 Jan 18	130	54	
19 Jan 18	131	55	
25 Jan 18	126	55	
31 Jan 18	96	55	
6 Feb 18	69	55	
12 Feb 18	143	56	
18 Feb 18	119	56	
24 Feb 18	263	59	
2 Mar 18	61	59	
8 Mar 18	42	59	
14 Mar 18	67	59	
20 Mar 18	145	61	
26 Mar 18	41	61	

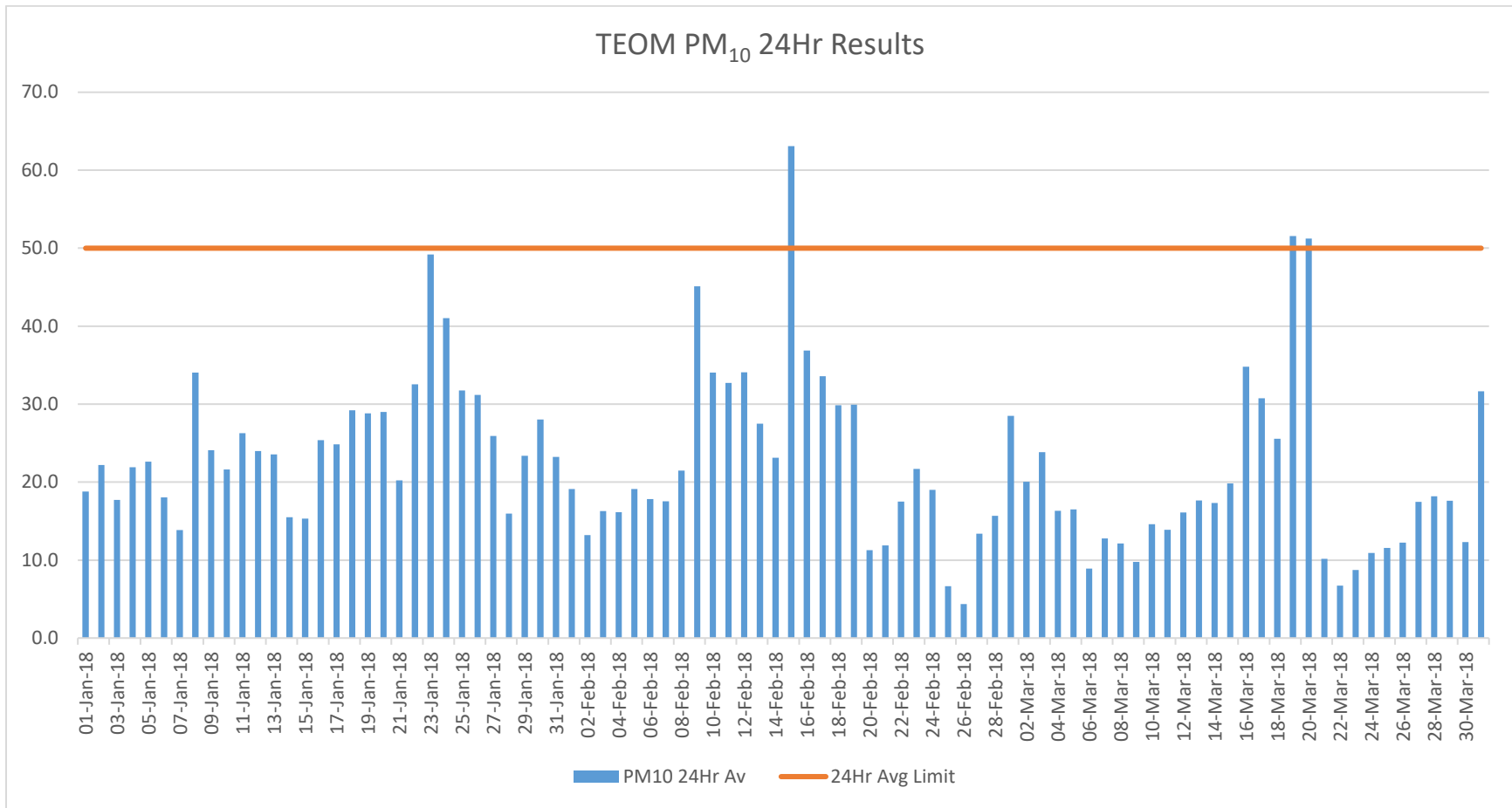


Figure 1: PM₁₀ monitoring results for the TEOM continuous Monitor.

Notes:

An elevated 24-hour average PM₁₀ result (63.1 µg/m³) was recorded on 15 February 2018. This monitor is located to the north east of the site. Wind direction during the 24-hour period was predominantly from the south east with the monitor located downwind of the site for 15 per cent

of the day. One dozer was operating at Maxwell Infrastructure on this day. The UHAQMN also recorded elevated readings at Singleton ($63.9 \mu\text{g}/\text{m}^3$), Camberwell ($68.0 \mu\text{g}/\text{m}^3$) and Muswellbrook ($74 \mu\text{g}/\text{m}^3$) indicating a regional dust event.

An elevated 24-hour average PM_{10} result ($51.5 \mu\text{g}/\text{m}^3$) was recorded on 19 March 2018. This monitor is located to the north east of the site. Wind direction during the 24-hour period was predominantly from the north west with the monitor located downwind of the site for 20 per cent of the day. No operational activity was occurring at Maxwell Infrastructure on this day. The UHAQMN also recorded elevated readings at Muswellbrook ($69.1 \mu\text{g}/\text{m}^3$), Camberwell ($72.8 \mu\text{g}/\text{m}^3$) and Singleton ($71.7 \mu\text{g}/\text{m}^3$) indicating a regional dust event.

An elevated 24-hour average PM_{10} result ($51.2 \mu\text{g}/\text{m}^3$) was recorded on 20 March 2018. This monitor is located to the north east of the site. Wind direction during the 24-hour period was predominantly from the North West with the monitor located downwind of the site for 7 per cent of the day. No operational activity was occurring at Maxwell Infrastructure on this day. The Upper Hunter UHAQMN also recorded high readings at Muswellbrook ($58.9 \mu\text{g}/\text{m}^3$), Camberwell ($46.8 \mu\text{g}/\text{m}^3$) and Singleton ($44.0 \mu\text{g}/\text{m}^3$) indicating a regional dust event.

Table 3: Surface water quality monitoring results for Quarter 1.

Site	Month	pH	EC (μ S/cm)	TDS (mg/L)	TSS (mg/L)	Bicarbonate (CaCO ₃) (mg/L)	Sulphate (SO ₄) (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)
Antiene Dam (2221)	Jan	5.70	5,970	4,700	141	5	3,250	585	466	339	498	76
	Feb	2.67	6,290	5,800	14	<1	3,620	353	343	388	368	29
	Mar	2.67	6,010	5,270	88	<1	3,740	368	342	334	326	23
	Average	3.68	6,090	5,257	81	2	3,537	435	384	354	397	43
Access Rd Dam* (2081)	Jan	8.04	7,880	7,450	14	77	4,190	942	502	625	783	75
	Feb	7.66	8,090	7,630	5	83	4,140	965	504	593	824	87
	Mar	7.35	8,180	7,680	<5	90	3,560	921	467	569	731	72
	Average	7.68	8,050	7,587	8	83	3,963	943	491	596	779	78
DC2 Dam* (2109)	Jan	7.57	5,970	4,620	14	105	1,940	985	154	248	969	14
	Feb	7.00	2,630	1,750	32	43	580	462	66	90	386	8
	Mar	7.10	3,100	2,070	23	74	557	527	68	98	412	7
	Average	7.22	3,900	2,813	23	74	1026	658	96	145	589	10
Rail Loop Dam* (2114)	Jan	7.89	4,730	4,150	10	80	2,110	594	247	299	514	27
	Feb	7.36	1,540	1,090	24	48	465	176	78	72	146	10
	Mar	7.61	1,740	1,170	<5	82	478	160	94	72	149	8
	Average	7.62	2,670	2,136	13	70	1,018	310	140	148	270	15
Far East Tip* (1895)	Jan	9.11	7,910	5,990	10	272	2,840	1,120	29	501	1,350	29
	Feb	8.91	8,320	6,440	7	420	2,840	1,140	31	503	1,380	37
	Mar	8.75	7,750	5,680	<5	456	2,390	986	40	414	1,140	28
	Average	8.92	7,993	6,036	7	383	2,690	1,082	33	473	1,290	31
Savoy Dam* (1609)	Jan	8.54	10,100	10,100	7	53	5,420	1,190	746	908	955	127
	Feb	8.89	11,000	11,300	6	29	6,020	1,260	793	908	1040	144
	Mar	8.73	10,400	10,600	7	24	4,720	1,130	703	821	878	113
	Average	8.72	10,500	10,667	7	35	5,387	1193	747	879	958	128
SW 13*	Jan	8.05	7,120	4,650	<5	210	4,050	740	547	571	676	58
	Feb	7.87	7,170	6,220	6	225	3,810	719	542	546	663	63
	Mar	8.10	7,040	6,910	<5	217	3,410	717	494	486	590	54
	Average	8.01	7,110	5,927	5	217	3,757	725	527	534	643	58

Site	Month	pH	EC ($\mu\text{S/cm}$)	TDS (mg/L)	TSS (mg/L)	Bicarbonate (CaCO_3) (mg/L)	Sulphate (SO_4) (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)
Industrial Dam* (1969)	Jan	8.28	6,340	6,000	6	114	3,220	769	385	463	643	51
	Feb	8.26	6,330	5,590	7	127	3,000	760	382	454	658	58
	Mar	8.03	6,230	5,410	<5	114	2,870	702	345	400	565	48
	Average	8.19	6,300	5,667	6	118	3,030	744	371	439	622	52
OPC Dam*	Jan	8.69	5,810	5,450	<5	129	2,850	691	353	443	564	51
	Feb	7.62	1,680	1,240	14	76	508	171	92	97	133	13
	Mar	8.12	1,980	1,440	<5	88	560	168	117	102	140	12
	Average	8.14	3,157	2,710	8	98	1,306	343	187	214	279	25
V Notch*	Jan	8.20	11,200	9,180	5	219	3,800	1,880	281	471	1,980	18
	Feb	7.82	13,500	11,500	8	256	5,760	2,220	468	582	2,260	45
	Mar	7.84	9,380	8,010	<5	263	3,360	1,280	379	353	1,380	21
	Average	7.95	11,360	9,563	6	246	4,307	1,793	376	469	1,873	28

Note:

- Maxwell Infrastructure is a closed water management system with all water maintained on-site for use in dust suppression and mining activities.
- Average is the mean result for 2018 (Jan – Mar 2018).
- * indicates mine water storage.

Table 4. Noise monitoring results for January 2018.

Noise Monitoring									
Sampling point	Period	Noise Limits LA eq (15 minutes)				Noise Limits LA1 (1 minute)		Exceedance (yes/no)	Observations
		Evening Criteria	Noise Level	Night Criteria	Noise Level	Night Criteria	Noise Level		
12	15 mins	35	IA	39	IA	47	IA	No	
13	15 mins	35	IA	36	IA	45	IA	No	
14	15 mins	35	IA	37	IA	47	IA	No	
16*	15 mins	35	IA	38	IA	47	IA	No	
17	15 mins	35	IA	38	IA	47	IA	No	
18	15 mins	35	IA	40	IA	47	IA	No	
19	15 mins	35	IA	41	IA	47	IA	No	
20	15 mins	35	IA	41	IA	45	IA	No	
21	15 mins	36	IA	41	IA	45	IA	No	
22	15 mins	36	IA	42	IA	45	IA	No	
23	15 mins	37	IA	40	IA	47	IA	No	
25*	15 mins	37	IA	41	IA	47	IA	No	
26	15 mins	36	IA	35	IA	47	IA	No	
27	15 mins	36	IA	36	IA	47	IA	No	
28	15 mins	37	IA	37	IA	47	IA	No	
29	15 mins	37	IA	38	IA	47	IA	No	
31	15 mins	37	IA	39	IA	47	IA	No	
32	15 mins	37	IA	42	IA	47	IA	No	
33	15 mins	38	IA	36	IA	45	IA	No	
34	15 mins	38	IA	38	IA	45	IA	No	
35*	15 mins	38	IA	38	IA	45	IA	No	
37	15 mins	39	IA	38	IA	45	IA	No	
42*	15 mins	40	IA	39	IA	45	IA	No	
61*	15 mins	40	IA	39	IA	45	IA	No	
69	15 mins	39	IA	39	IA	47	IA	No	

Noise Monitoring									
Sampling point	Period	Noise Limits LA eq (15 minutes)				Noise Limits LA1 (1 minute)		Exceedance (yes/no)	Observations
		Evening Criteria	Noise Level	Night Criteria	Noise Level	Night Criteria	Noise Level		
70	15 mins	40	IA	39	IA	47	IA	No	
71	15 mins	41	IA	39	IA	47	IA	No	
72*	15 mins	35	IA	35	IA	47	IA	No	
75*	15 mins	35	IA	35	IA	47	IA	No	
76*	15 mins	35	IA	35	IA	47	IA	No	
86	15 mins	35	IA	35	IA	45	IA	No	
All Other Privately-Owned Land	15 mins	35	IA	35	IA	45	IA	No	
Additional Information									
Date of Final Report	16 February 2018								
Date Sampled	29/30 January 2018								
Weather Conditions	Light winds (2.4 to 5.7 m/s)								
Notes	IA – Inaudible *Residences where attended noise monitoring is undertaken. The noise level at all other locations are determined by noise modelling.								

Table 5. Noise monitoring results for February 2018.

Noise Monitoring									
Sampling point	Period	Noise Limits LA eq (15 minutes)				Noise Limits LA1 (1 minute)		Exceedance (yes/no)	Observations
		Evening Criteria	Noise Level	Night Criteria	Noise Level	Night Criteria	Noise Level		
12	15 mins	35	IA	39	IA	47	IA	No	
13	15 mins	35	IA	36	IA	45	IA	No	
14	15 mins	35	IA	37	IA	47	IA	No	
16*	15 mins	35	IA	38	IA	47	IA	No	
17	15 mins	35	IA	38	IA	47	IA	No	
18	15 mins	35	IA	40	IA	47	IA	No	
19	15 mins	35	IA	41	IA	47	IA	No	
20	15 mins	35	IA	41	IA	45	IA	No	
21	15 mins	36	IA	41	IA	45	IA	No	
22	15 mins	36	IA	42	IA	45	IA	No	
23	15 mins	37	IA	40	IA	47	IA	No	
25*	15 mins	37	IA	41	IA	47	IA	No	
26	15 mins	36	IA	35	IA	47	IA	No	
27	15 mins	36	IA	36	IA	47	IA	No	
28	15 mins	37	IA	37	IA	47	IA	No	
29	15 mins	37	IA	38	IA	47	IA	No	
31	15 mins	37	IA	39	IA	47	IA	No	
32	15 mins	37	IA	42	IA	47	IA	No	
33	15 mins	38	IA	36	IA	45	IA	No	
34	15 mins	38	IA	38	IA	45	IA	No	
35*	15 mins	38	IA	38	IA	45	IA	No	
37	15 mins	39	IA	38	IA	45	IA	No	
42*	15 mins	40	IA	39	IA	45	IA	No	
61*	15 mins	40	IA	39	IA	45	IA	No	
69	15 mins	39	IA	39	IA	47	IA	No	

Noise Monitoring									
Sampling point	Period	Noise Limits LA eq (15 minutes)				Noise Limits LA1 (1 minute)		Exceedance (yes/no)	Observations
		Evening Criteria	Noise Level	Night Criteria	Noise Level	Night Criteria	Noise Level		
70	15 mins	40	IA	39	IA	47	IA	No	
71	15 mins	41	IA	39	IA	47	IA	No	
72*	15 mins	35	IA	35	IA	47	IA	No	
75*	15 mins	35	IA	35	IA	47	IA	No	
76*	15 mins	35	IA	35	IA	47	IA	No	
86	15 mins	35	IA	35	IA	45	IA	No	
All Other Privately-Owned Land	15 mins	35	IA	35	IA	45	IA	No	
Additional Information									
Date of Final Report	21 March 2018								
Date Sampled	22 February 2018								
Weather Conditions	Light winds (2.2 to 3.6 m/s)								
Notes	IA – Inaudible *Residences where attended noise monitoring is undertaken. The noise level at all other locations are determined by noise modelling.								

Table 6. Noise monitoring results for March 2018.

Noise Monitoring											
Sampling point	Period	Noise Limits LA eq (15 minutes)						Noise Limits LA1 (1 minute)		Exceedance (yes/no)	Observations
		Day Criteria	Noise Level	Evening Criteria	Noise Level	Night Criteria	Noise Level	Night Criteria	Noise Level		
12	15 mins	35	IA	35	IA	39	IA	47	IA	No	
13	15 mins	35	IA	35	IA	36	IA	45	IA	No	
14	15 mins	35	IA	35	IA	37	IA	47	IA	No	
16	15 mins	35	IA	35	IA	38	IA	47	IA	No	
17	15 mins	35	IA	35	IA	38	IA	47	IA	No	
18	15 mins	35	IA	35	IA	40	IA	47	IA	No	
19	15 mins	35	IA	35	IA	41	IA	47	IA	No	
20	15 mins	35	IA	35	IA	41	IA	45	IA	No	
21	15 mins	35	IA	36	IA	41	IA	45	IA	No	
22	15 mins	35	IA	36	IA	42	IA	45	IA	No	
23	15 mins	35	IA	37	IA	40	IA	47	IA	No	
25	15 mins	35	IA	37	IA	41	IA	47	IA	No	
26	15 mins	36	IA	36	IA	35	IA	47	IA	No	
27	15 mins	36	IA	36	IA	36	IA	47	IA	No	
28	15 mins	36	IA	37	IA	37	IA	47	IA	No	
29	15 mins	36	IA	37	IA	38	IA	47	IA	No	
31	15 mins	36	IA	37	IA	39	IA	47	IA	No	
32	15 mins	36	IA	37	IA	42	IA	47	IA	No	
33	15 mins	37	IA	38	IA	36	IA	45	IA	No	
34	15 mins	38	IA	38	IA	38	IA	45	IA	No	
35	15 mins	38	IA	38	IA	38	IA	45	IA	No	
37	15 mins	38	IA	39	IA	38	IA	45	IA	No	
42	15 mins	39	IA	40	IA	39	IA	45	IA	No	
61	15 mins	39	IA	40	IA	39	IA	45	IA	No	
69	15 mins	40	IA	39	IA	39	IA	47	IA	No	

Noise Monitoring											
Sampling point	Period	Noise Limits LA eq (15 minutes)						Noise Limits LA1 (1 minute)		Exceedance (yes/no)	Observations
		Day Criteria	Noise Level	Evening Criteria	Noise Level	Night Criteria	Noise Level	Night Criteria	Noise Level		
70	15 mins	40	IA	40	IA	39	IA	47	IA	No	
71	15 mins	41	IA	41	IA	39	IA	47	IA	No	
72	15 mins	35	IA	35	IA	35	IA	47	IA	No	
75	15 mins	35	IA	35	IA	35	IA	47	IA	No	
76	15 mins	35	IA	35	IA	35	IA	47	IA	No	
86	15 mins	35	IA	35	IA	35	IA	45	IA	No	
All Other Privately- Owned Land	15 mins	35	IA	35	IA	35	IA	45	IA	No	
Additional Information											
Date of Final Report	4 April 2018										
Date Sampled	15 March 2018										
Weather Conditions	Light winds (0.7 to 3 m/s)										
Notes	IA – Inaudible *Residences where attended noise monitoring is undertaken. The noise level at all other locations are determined by noise modelling.										