



Maxwell Infrastructure  
Environmental Monitoring Data  
Quarter 3 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 July to September 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.

## **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 PM<sub>10</sub> monitoring results are provided in Figure 1.

Surface water quality monitoring results are provided in Table 3.

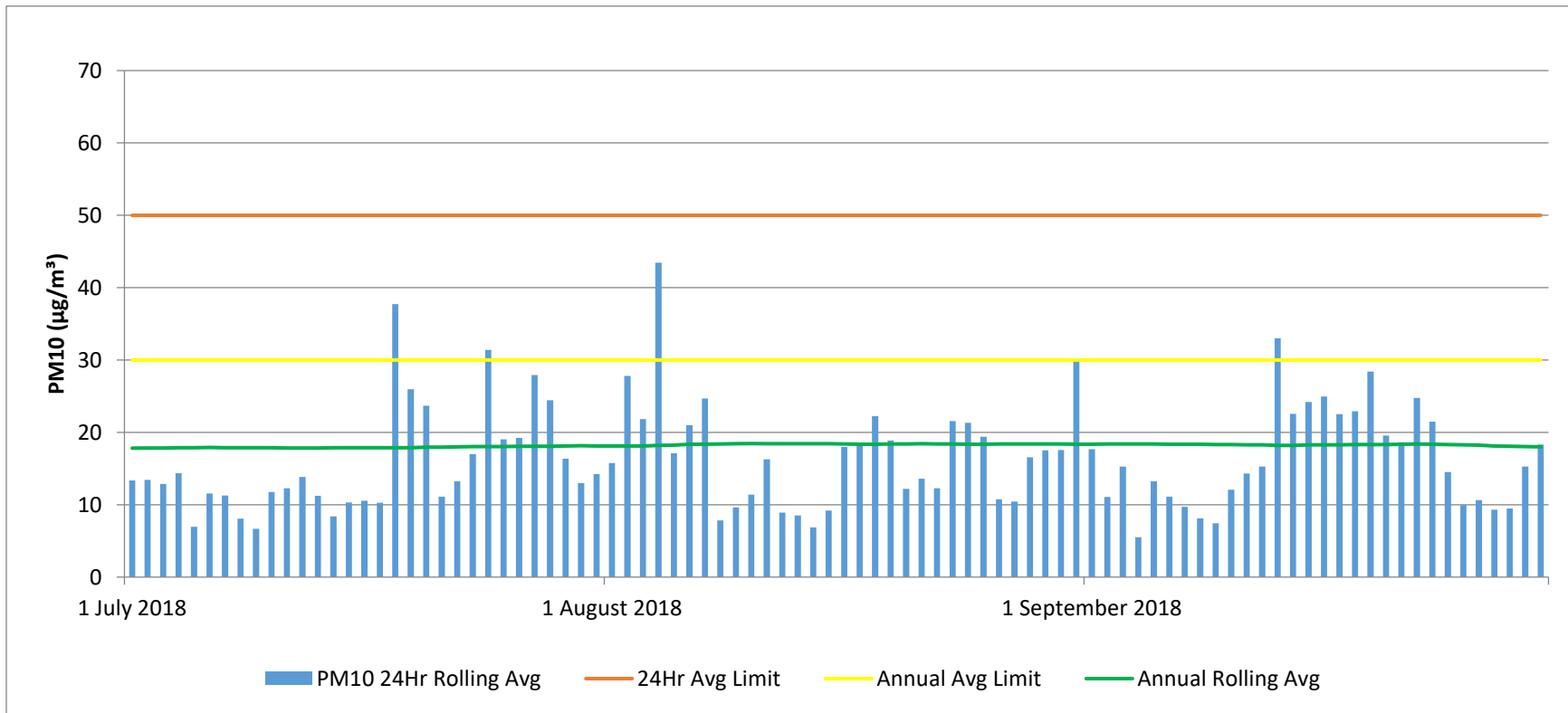
Noise monitoring results are provided in Table 4, 5 and 6.

**Table 1: Depositional dust monitoring results for Quarter 3.**

<b>Air Quality Monitoring – Depositional Dust</b>					
<b>Gauge</b>	<b>Insoluble Solids Result (g/m<sup>2</sup>/month)</b>			<b>Annual Mean (YTD) (g/m<sup>2</sup>/month)</b>	<b>Annual Mean Limit (g/m<sup>2</sup>/month)</b>
	<b>July</b>	<b>August</b>	<b>September</b>		
2197	1.8	2.9	1.8	2.46	4.0
2230	1.7	2.6	3.9	2.30	4.0
2157	1.2	1.9	1.6	2.03	4.0
2208	1.2	1.5	3.8	2.06	4.0
2247	2.2	2.1	2.6	2.40	4.0
2235	1.8	2.0	3.1	2.32	4.0
2175	1.6	1.9	3.1	2.03	4.0
2130	1.0	1.8	2.6	2.11	4.0

**Table 2: Total suspended particulates – High volume air sampler (HVAS) results for Quarter 3.**

Air Quality Monitoring – Total Suspended Particulates (TSP)			
Date	TSP Result	Annual Mean (12 month Rolling Average)	Annual Mean Limit
06-Jul-18	65	71.9	90 (12 month rolling average)
12-Jul-18	66	72.5	
18-Jul-18	128	74.1	
24-Jul-18	248	77.8	
30-Jul-18	210	81.1	
05-Aug-18	164	83.3	
11-Aug-18	108	84.4	
17-Aug-18	116	85.2	
23-Aug-18	134	86.4	
29-Aug-18	72	86.5	
04-Sep-18	33	85.7	
10-Sep-18	67	86.2	
16-Sep-18	178	88.1	
22-Sep-18	136	89.1	
28-Sep-18	68	89.1	



**Figure 1: TEOM PM<sub>10</sub> monitoring results for Quarter 3**

Notes:

No elevated 24-hour average PM<sub>10</sub> results were recorded during the reporting period.

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

Site	Month	pH	EC (µS/cm)	TDS (mg/L)	TSS (mg/L)	Bicarbonate (CaCO3) (mg/L)	Sulphate (SO4) (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)
Antiene Dam (2221)	Jul	3.02	6,090	5,120	19	<1	3,350	568	411	347	417	36
	Aug	2.98	6,290	4,890	53	<1	3,200	618	386	367	421	40
	Sep	3.20	6,260	4,940	82	<1	2,740	632	400	393	519	44
	<b>Average (YTD)</b>	<b>3.17</b>	<b>6,003</b>	<b>5,184</b>	<b>52</b>	<b>1</b>	<b>3,189</b>	<b>517</b>	<b>390</b>	<b>358</b>	<b>418</b>	<b>40</b>
Access Rd Dam* (2081)	Jul	8.01	8,380	7,750	7	122	4,110	1,000	559	610	765	76
	Aug	8.23	8,510	8,060	8	124	4,050	976	554	636	765	82
	Sep	8.01	8,750	6,820	18	137	3,820	971	541	636	833	97
	<b>Average (YTD)</b>	<b>7.96</b>	<b>8,211</b>	<b>7,701</b>	<b>8</b>	<b>108</b>	<b>4,034</b>	<b>963</b>	<b>533</b>	<b>618</b>	<b>786</b>	<b>81</b>
DC2 Dam* (2109)	Jul	7.75	7,630	5,740	11	215	2,420	1,270	161	279	1,170	12
	Aug	7.89	8,350	5,710	<5	220	2,640	1,370	176	316	1,260	13
	Sep	7.52	9,780	5,140	<5	248	2,630	1,540	198	380	1,590	18
	<b>Average (YTD)</b>	<b>7.47</b>	<b>6,090</b>	<b>4,137</b>	<b>12</b>	<b>165</b>	<b>1,769</b>	<b>1,014</b>	<b>135</b>	<b>230</b>	<b>947</b>	<b>12</b>
Rail Loop Dam* (2114)	Jul	8.22	3,130	2,420	<5	169	1,180	347	142	155	322	11
	Aug	8.27	3,500	2,650	<5	175	1,320	408	153	176	356	13
	Sep	8.27	3,880	2,650	<5	175	1,270	462	162	213	477	16
	<b>Average (YTD)</b>	<b>8.02</b>	<b>2,903</b>	<b>2,209</b>	<b>8</b>	<b>132</b>	<b>1,040</b>	<b>336</b>	<b>142</b>	<b>153</b>	<b>309</b>	<b>13</b>
Far East Tip* (1895)	Jul	8.42	8,430	6,610	<5	643	2,900	1,120	71	472	1,280	30
	Aug	-	-	-	-	-	-	-	-	-	-	-
	Sep	-	-	-	-	-	-	-	-	-	-	-
	<b>Average (YTD)</b>	<b>8.64</b>	<b>8,021</b>	<b>6,267</b>	<b>7</b>	<b>535</b>	<b>2,747</b>	<b>1,087</b>	<b>49</b>	<b>473</b>	<b>1,289</b>	<b>31</b>
Savoy Dam* (1609)	Jul	8.71	11,400	12,100	<5	41	5,770	1,290	798	900	972	123
	Aug	8.74	11,800	10,300	<5	44	5,700	1,360	819	1,010	1,050	141
	Sep	9.51	13,100	10,800	6	26	5,910	1,410	765	1,040	1,200	156
	<b>Average (YTD)</b>	<b>8.83</b>	<b>11,052</b>	<b>10,867</b>	<b>8</b>	<b>35</b>	<b>5,704</b>	<b>1,259</b>	<b>781</b>	<b>926</b>	<b>1,005</b>	<b>131</b>

Site	Month	pH	EC (µS/cm)	TDS (mg/L)	TSS (mg/L)	Bicarbonate (CaCO <sub>3</sub> ) (mg/L)	Sulphate (SO <sub>4</sub> ) (mg/L)	Chloride (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)
SW 13*	Jul	-	-	-	-	-	-	-	-	-	-	-
	Aug	-	-	-	-	-	-	-	-	-	-	-
	Sep	8.03	6,530	6,510	9	243	3,780	670	514	518	606	56
	<b>Average (YTD)</b>	<b>8.01</b>	<b>6,965</b>	<b>6,073</b>	<b>6</b>	<b>224</b>	<b>3,763</b>	<b>712</b>	<b>524</b>	<b>530</b>	<b>634</b>	<b>58</b>
Industrial Dam* (1969)	Jul	8.71	6,520	5,850	8	126	3,080	739	403	428	608	49
	Aug	8.37	6,650	4,570	5	121	3,110	772	378	441	595	52
	Sep	8.22	6,820	5,940	14	115	2,810	801	386	482	708	64
	<b>Average (YTD)</b>	<b>8.22</b>	<b>6,357</b>	<b>5,476</b>	<b>15</b>	<b>121</b>	<b>3,011</b>	<b>753</b>	<b>376</b>	<b>441</b>	<b>621</b>	<b>53</b>
OPC Dam*	Jul	8.27	8,450	8,400	48	150	4,090	980	551	599	752	74
	Aug	8.04	8,640	7,380	14	185	4,100	1,030	537	633	762	79
	Sep	8.4	7,540	5,150	45	161	3,180	856	456	560	743	76
	<b>Average (YTD)</b>	<b>8.22</b>	<b>6,056</b>	<b>5,420</b>	<b>24</b>	<b>131</b>	<b>2,811</b>	<b>701</b>	<b>377</b>	<b>443</b>	<b>562</b>	<b>55</b>
V Notch*	Jul	7.87	12,600	11,200	<5	371	4,900	2,020	573	545	2,120	18
	Aug	8.15	12,500	9,880	<5	330	4,630	1,730	538	505	1,870	20
	Sep	7.96	14,700	8,120	6	450	4,670	2,360	532	608	2,320	25
	<b>Average (YTD)</b>	<b>7.94</b>	<b>12,553</b>	<b>10,543</b>	<b>5</b>	<b>342</b>	<b>4,760</b>	<b>2,012</b>	<b>496</b>	<b>537</b>	<b>2,081</b>	<b>23</b>

**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 – Sept 2018).
- \* indicates mine water storage.
- SW13 not sampled in July and August due to access restrictions.
- Far East Tip not sampled in August and September due to access restrictions.

Table 4. Noise monitoring results for July 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	



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	
<b>Additional Information</b>									
Date of Final Report	14 August 2018								
Date Sampled	23/24 July 2018								
Weather Conditions	Calm								
Notes	IA – Inaudible *Residences where attended noise monitoring is undertaken. The noise levels at all other locations are determined by noise modelling.								

Table 5. Noise monitoring results for August 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	

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	17 August 2018								
Date Sampled	8 August 2018								
Weather Conditions	Light Winds								
Notes	IA – Inaudible *Residences where attended noise monitoring is undertaken. The noise levels at all other locations are determined by noise modelling.								

Table 6. Noise monitoring results for September 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	

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	15 October 2018										
Date Sampled	25 September 2018										
Weather Conditions	Light winds										
Notes	IA – Inaudible *Residences where attended noise monitoring is undertaken. The noise levels at all other locations are determined by noise modelling.										