Maules Creek Coal Mine
Community Consultative Committee
Meeting #19

Environmental Monitoring Report
For the Q3 period, July – September 2017

Attended Noise Monitoring

Attended noise monitoring was undertaken at six locations, as per the approved Noise Management Plan, on the 24/25 & 25/26 July; 22/23 and 23/24 August; and 25/26 & 26/27 September 2017 by an independent acoustic consultant. The measured noise level ($LA_{eq\ 15\ minute}$) attributed to Maules Creek Coal Mine (MCCM) and applicable criteria for each location are shown in the tables below.

LAeq, 15minute GENERATED BY MCC AGAINST OPERATIONAL EVENING AND NIGHT NOISE CRITERIA – JULY TO SEPTEMBER 2017.

Table 1 - July Noise Monitoring – Evening & Night Period

		Time	Wind Speed	Rainfall	Criterion	Criterion	MCC LAeq	Exceedance
			m/s	mm	dB [3]	Applies [1]	dB [2,4]	dB [4,5]
NM1	25/07/2017	20:00	1.3	0	35	Yes	24	Nil
NM1	25/07/2017	20:17	1.3	0	35	Yes	26	Nil
NM1	24/07/2017	23:15	1.5	0	35	Yes	34	Nil
NM1	24/07/2017	23:40	1.4	0	35	Yes	30	Nil
NM1	25/07/2017	0:00	1.1	0	35	Yes	28	Nil
NM2	24/07/2017	21:16	2.1	0	39	Yes	30	Nil
NM2	24/07/2017	21:31	1	0	39	Yes	29	Nil
NM2	25/07/2017	22:00	1.2	0	39	Yes	<20	Nil
NM2	25/07/2017	22:16	1.4	0	39	Yes	<20	Nil
NM3	24/07/2017	19:30	3.3	0	35	No	IA	NA
NM3	24/07/2017	19:45	6.9	0	35	No	IA	NA
NM3	25/07/2017	23:30	1.6	0	35	Yes	IA	Nil
NM3	25/07/2017	23:46	1.6	0	35	Yes	IA	Nil
NM4	25/07/2017	20:45	1.2	0	NA	NA	NM	NA
NM4	25/07/2017	21:01	2.2	0	NA	NA	IA	NA
NM4	24/07/2017	22:30	1.1	0	NA	NA	33	NA
NM4	24/07/2017	22:45	1.9	0	NA	NA	33	NA
NM5	25/07/2017	19:15	0.8	0	35	Yes	<20	Nil
NM5	25/07/2017	19:31	1.2	0	35	Yes	27	Nil
NM5	25/07/2017	0:44	1.6	0	35	Yes	25	Nil
NM5	25/07/2017	0:59	1.4	0	35	Yes	29	Nil
NM6	24/07/2017	20:20	2.8	0	35	Yes	IA	Nil
NM6	24/07/2017	20:36	3.1	0	35	No	IA	NA
NM6	25/07/2017	22:43	1.2	0	35	Yes	IA	Nil
NM6	25/07/2017	22:58	1.6	0	35	Yes	IA	Nil

Table 2 - August Noise Monitoring – Evening & Night Period

		Time	Wind Speed	Rainfall	Criterion	Criterion	MCC LAeq	Exceedance
			m/s	mm	dB[3]	Applies [1]	dB [2,4]	dB [4,5]
NM1	23/08/2017	21:15	0.3	0	35	Yes	27	Nil
NM1	23/08/2017	21:31	0.6	0	35	Yes	26	Nil
NM1	22/08/2017	23:00	0.7	0	35	Yes	27	Nil
NM1	22/08/2017	23:15	0.6	0	35	Yes	<25	Nil
NM2	22/08/2017	21:15	0.3	0	39	Yes	33	Nil
NM2	22/08/2017	21:30	0.2	0	39	Yes	25	Nil
NM2	23/08/2017	22:00	0.3	0	39	Yes	<20	Nil
NM2	23/08/2017	22:15	0.5	0	39	Yes	<20	Nil
NM3	22/08/2017	19:46	0.4	0	35	Yes	IA	Nil
NM3	22/08/2017	20:01	0.4	0	35	Yes	IA	Nil
NM3	23/08/2017	23:28	0.4	0	35	Yes	IA	Nil
NM3	23/08/2017	23:43	0.4	0	35	Yes	IA	Nil
NM4	23/08/2017	20:30	0.6	0	NA	NA	21	NA
NM4	23/08/2017	20:45	0.3	0	NA	NA	<20	NA
NM4	22/08/2017	22:00	0.2	0	NA	NA	30	NA
NM4	22/08/2017	22:15	0.4	0	NA	NA	29	NA
NM5	23/08/2017	21:15	0.3	0	35	Yes	33	Nil
NM5	23/08/2017	21:45	0.3	0	35	Yes	30	Nil
NM5	22/08/2017	23:45	0.5	0	35	Yes	<20	Nil
NM5	23/08/2017	0:00	0.4	0	35	Yes	<25	Nil
NM6	22/08/2017	20:26	0.4	0	35	Yes	<20	Nil
NM6	22/08/2017	20:42	0.3	0	35	Yes	<20	Nil
NM6	23/08/2017	22:47	0.4	0	35	Yes	IA	Nil
NM6	23/08/2017	23:03	0.5	0	35	Yes	IA	Nil

Table 3 - September Noise Monitoring – Evening & Night Period

		Time	Wind Speed	Rainfall	Criterion	Criterion	MCC LAeq	Exceedance
			m/s	mm	dB[3]	Applies [1]	dB [2,4]	dB [4,5]
NM1	26/09/2017	19:05	0.7	0	35	Yes	23	Nil
NM1	26/09/2017	19:20	0.8	0	35	Yes	29	Nil
NM1	25/09/2017	22:58	1.8	0	35	Yes	<25	Nil
NM1	25/09/2017	23:13	1.6	0	35	Yes	NM	Nil
NM2	25/09/2017	19:35	0.5	0	39	Yes	IA	Nil
NM2	25/09/2017	19:50	0.4	0	39	Yes	IA	Nil
NM2	26/09/2017	22:00	0.6	0	39	Yes	30	Nil
NM2	26/09/2017	22:15	0.4	0	39	Yes	31	Nil
NM3	25/09/2017	18:14	0.1	0	35	Yes	IA	Nil
NM3	25/09/2017	18:29	0.3	0	35	Yes	IA	Nil
NM3	26/09/2017	23:25	1.3	0	35	Yes	IA	Nil
NM3	26/09/2017	23:40	0.8	0	35	Yes	IA	Nil
NM4	26/09/2017	20:13	0.4	0	NA	Yes	33	NA
NM4	26/09/2017	20:28	0.5	0	NA	Yes	31	NA
NM4	26/09/2017	0:00	0.8	0	NA	Yes	25	NA
NM4	26/09/2017	0:15	0.3	0	NA	Yes	<25	NA
NM5	26/09/2017	18:27	1	0	35	Yes	IA	Nil
NM5	26/09/2017	18:42	1.5	0	35	Yes	IA	Nil
NM5	25/09/2017	22:00	0.3	0	35	Yes	32	Nil
NM5	25/09/2017	22:27	0.2	0	35	Yes	30	Nil
NM6	25/09/2017	18:54	0.3	0	35	Yes	IA	Nil
NM6	25/09/2017	19:09	0.6	0	35	Yes	IA	Nil
NM6	26/09/2017	22:41	1.6	0	35	Yes	<20	Nil
NM6	26/09/2017	22:56	2	0	35	Yes	<20	Nil

(1). Noise emission limits do not apply during periods of rainfall or winds greater than 3 metres per second (at a height of 10 metres);
(2). Estimated or measured LAeq,15minute attributed to MCCP;
(3). NM4 has been acquired by MCCP, therefore limits are no longer applicable as per the EPL and project approval. The NMP requires monitoring at this location and results have been provided for information only;
(4). NA in exceedance column means criterion is not applicable, either due to atmospheric conditions outside those specified in project approval or due to property acquisition by MCCP; and
(5). Bold results indicate exceedance of criterion.

One measurement in July, two measurements in August and two measurements in September occurred during periods where:

- operational activities from MCCM were directly measurable (not “inaudible”, “not measurable”);
- noise levels were within 5 dB of the relevant criterion; and
- where meteorological conditions resulted in approval criteria applying.

These measurements were further analysed for low-frequency noise against relevant low frequency assessment triggers. Where results in the following table are greater than the applicable ‘Industrial Noise Policy’ (INP) low frequency modifying factor trigger due to activities at MCCM, a 5 dB modifying factor correction is applied to the measured noise level.

Table 4 - Attended Low Frequency Assessment

MCC ID	Date	Criterion dB	MCCP onlyLAeq dB	INP		Broner		dING	
				Result[1] LCeq – LAeq dB	With penalty LAeq dB1 (+5dB)	Result[2] LCeq dB	With penalty LAeq dB1 (+2dB)	Result[3] Max exc. of ref spectrum dB	With dING penalty LAeq dB1 (+2dB)
NM1	24/07/2017	35	34	23	39	57	NA	5	36
NM5	23/08/2017	35	33	23	38	57	NA	1	35
NM5	23/08/2017	35	30	21	35	51	NA	0	NA
NM5	25/09/2017	35	33	NA	NA	NA	NA	NA	NA

(1) Low frequency modifying factor trigger is $L_{Ceq} – L_{Aeq}$ >= 15 dB as per the INP;
(2) Night L_{Ceq} modifying factor trigger is L_{Ceq} 60 dB as per Broner (2010);
(3) Low frequency modifying factor trigger is comparison of measured spectrum against a reference spectrum as per the dING;
(4) NA – penalty did not apply as trigger was not satisfied
(5) NA 25/09 - not possible to determine the site only low frequency result due to the presence of other low frequency noise sources occurring during the first measurement.

During the measurement at monitoring location NM1 on 24 July at 23:15, the modifying factor was triggered as per Table 4 above. No consecutive sustained exceedances were measured at this monitoring location.

During measurements at NM5, starting at 21:15 and 21:45 on 23 August, the modifying factor was triggered. No consecutive sustained exceedances of the applicable criteria were measured at this monitoring location as shown in Table 4.

The measurements on 25 September at 22:00 and 22:27 were analysed. The MCCM low frequency contribution was unable to be analysed for the first measurement due to the presence of low frequency noise from another source. The second measurement, as shown in Table 3, was compliant with criteria.

In addition to the 15 minute average for Day, Evening and Night, the Maules Creek Coal (MCC) EPL 20221 also has a '1 Minute - Night' criteria (LA1) that applies from 10pm to 7am Monday to Saturday & 10pm to 8am Sundays and Public Holidays. The results for the LA1 monitoring are shown below. The results show that mine operations did not exceed the applicable LA1 criteria during attended noise monitoring in Q3 2017.

LA1, 1minute GENERATED BY MCC AGAINST OPERATIONAL EVENING NOISE CRITERIA – JULY TO SEPTEMBER 2017.

Table 5 - July Noise Monitoring – Night

$L_{A1\ (1min)}$		July Time	Wind Speed	Rainfall	Criterion	Criterion	MCC $L_{A1(1min)}$	Exceedance
			m/s	mm	dB[3]	Applies [1]	dB [2,4]	dB [4,5]
NM1	24/07/2017	23:15	1.5	0	45	Yes	40	Nil
NM1	24/07/2017	23:40	1.4	0	45	Yes	33	Nil
NM1	25/07/2017	0:00	1.1	0	45	Yes	32	Nil
NM2	25/07/2017	22:00	1.2	0	45	Yes	<20	Nil
NM2	25/07/2017	22:16	1.4	0	45	Yes	<20	Nil
NM3	25/07/2017	23:30	1.6	0	45	Yes	IA	Nil
NM3	25/07/2017	23:46	1.6	0	45	Yes	IA	Nil
NM4	24/07/2017	22:30	1.1	0	NA	NA	38	NA
NM4	24/07/2017	22:45	1.9	0	NA	NA	39	NA
NM5	25/07/2017	0:44	1.6	0	45	Yes	31	Nil
NM5	25/07/2017	0:59	1.4	0	45	Yes	35	Nil
NM6	25/07/2017	22:43	1.2	0	45	Yes	IA	Nil
NM6	25/07/2017	23:26	1.6	0	45	Yes	IA	Nil

Table 6 - August Noise Monitoring – Night

$L_{A1\ (1min)}$		August Time	Wind Speed	Rainfall	Criterion	Criterion	MCC $L_{A1(1min)}$	Exceedance
			m/s	mm	dB[3]	Applies [1]	dB [2,4]	dB [4,5]
NM1	22/08/2017	23:00	0.7	0	45	Yes	33	Nil
NM1	22/08/2017	23:15	0.6	0	45	Yes	25	Nil
NM2	23/08/2017	22:00	0.3	0	45	Yes	29	Nil
NM2	23/08/2017	22:15	0.5	0	45	Yes	20	Nil
NM3	23/08/2017	23:28	0.4	0	45	Yes	IA	Nil
NM3	23/08/2017	23:43	0.4	0	45	Yes	IA	Nil
NM4	22/08/2017	22:00	0.2	0	NA	NA	39	NA
NM4	22/08/2017	22:15	0.4	0	NA	NA	35	NA
NM5	22/08/2017	23:45	0.5	0	45	Yes	29	Nil
NM5	23/08/2017	0:00	0.4	0	45	Yes	32	Nil
NM6	23/08/2017	22:47	0.4	0	45	Yes	IA	Nil
NM6	23/08/2017	23:03	0.5	0	45	Yes	IA	Nil

Table 7 - September Noise Monitoring – Night

$L_{A1\ (1min)}$		August Time	Wind Speed	Rainfall	Criterion	Criterion	MCC $L_{A1(1min)}$	Exceedance
			m/s	mm	dB[3]	Applies [1]	dB [2,4]	dB [4,5]
NM1	25/09/2017	22:58	1.8	0	45	Yes	<25	Nil
NM1	25/09/2017	23:13	1.6	0	45	Yes	NM	Nil
NM2	26/09/2017	22:00	0.6	0	45	Yes	33	Nil
NM2	26/09/2017	22:15	0.4	0	45	Yes	33	Nil
NM3	26/09/2017	23:25	1.3	0	45	Yes	IA	Nil
NM3	26/09/2017	23:40	0.8	0	45	Yes	IA	Nil
NM4	26/09/2017	0:00	0.8	0	NA	Yes	30	NA
NM4	26/09/2017	0:15	0.3	0	NA	Yes	30	NA
NM5	25/09/2017	22:00	0.3	0	45	Yes	35	Nil
NM5	25/09/2017	22:27	0.2	0	45	Yes	33	Nil
NM6	26/09/2017	22:41	1.6	0	45	Yes	<20	Nil
NM6	26/09/2017	22:56	2	0	45	Yes	<20	Nil

Evening $L_{Aeq15min}$ Night $L_{Aeq15min}$, Night L_{A1min}

Notes:

1. *Noise emission limits do not apply during periods of rainfall or wind speeds greater than 3 metres per second (at 10 metres);*
2. *Estimated or measured LAeq,15minute attributed to MCCM;*
3. *NM4 was acquired by MCCP, therefore criteria are no longer applicable as per the EPL and project approval. The NMP requires monitoring at this location and results have been provided for information purposes;*
4. *Estimated or measured LA1,1minute attributed to MCCM;*
5. *NA in exceedance column means atmospheric conditions outside those specified in Project Approval and criterion is not applicable.*
   IA – Inaudible
   NM – Not measurable

Wind Direction during Attended Monitoring

Wind direction data is collected from the MCCM Automated Weather Station (AWS). Wind data for the duration of the attended monitoring assessment, recorded at the MCCM AWS is presented in the table below.

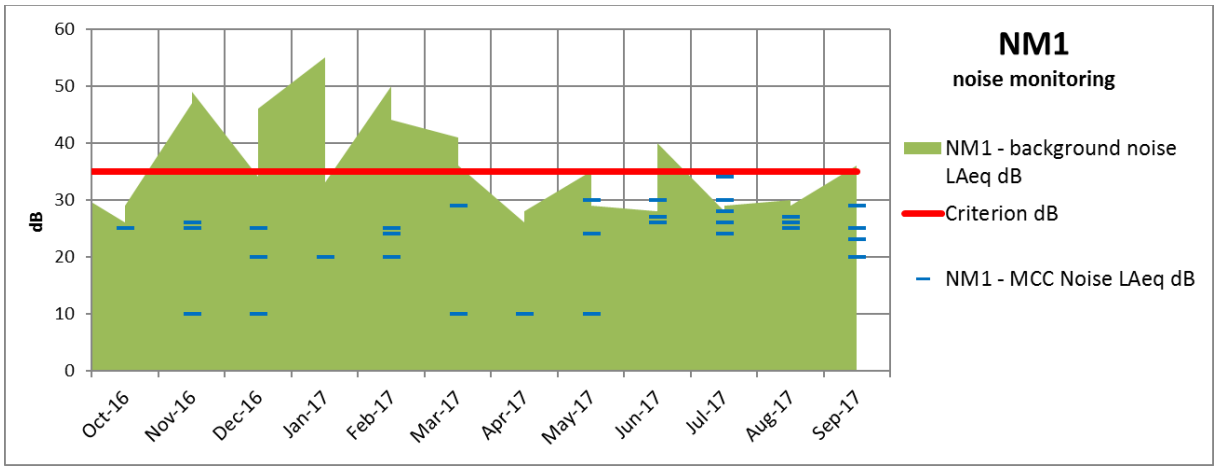
Table 8 - Prevailing Wind Direction

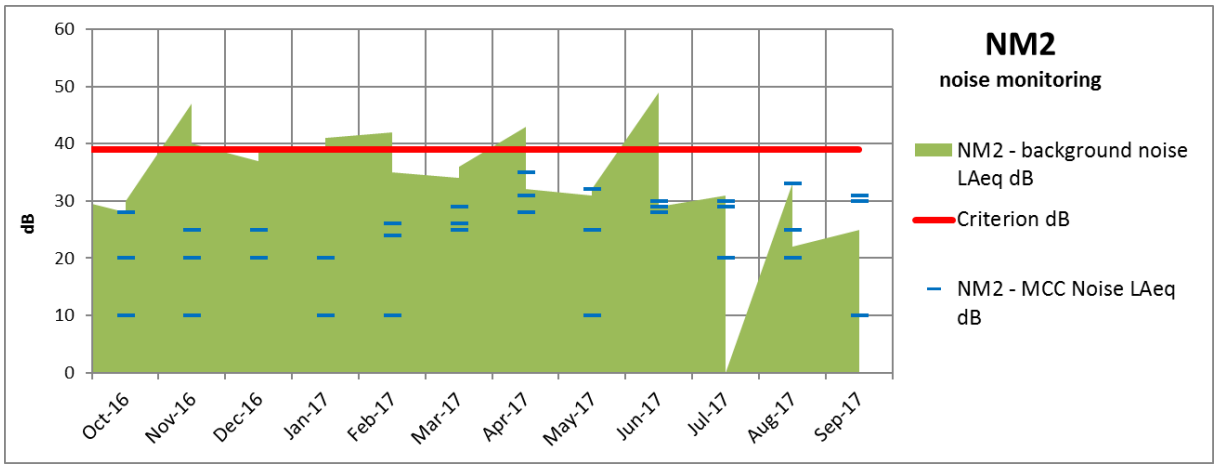
Monitoring Date	Prevailing Wind Direction
24/25 July	WNW, NE
25/26 July	SSW, ESE
22/23 August	ESE, SSE
23/24 August	ESE, S
25/26 September	SE
26/27 September	SE

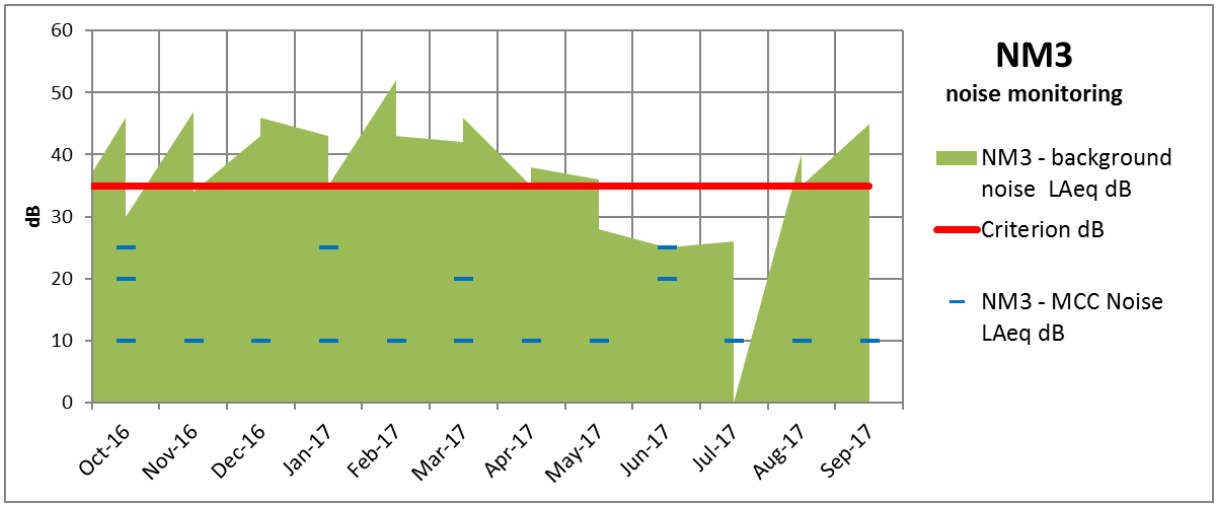
Attended Noise Monitoring

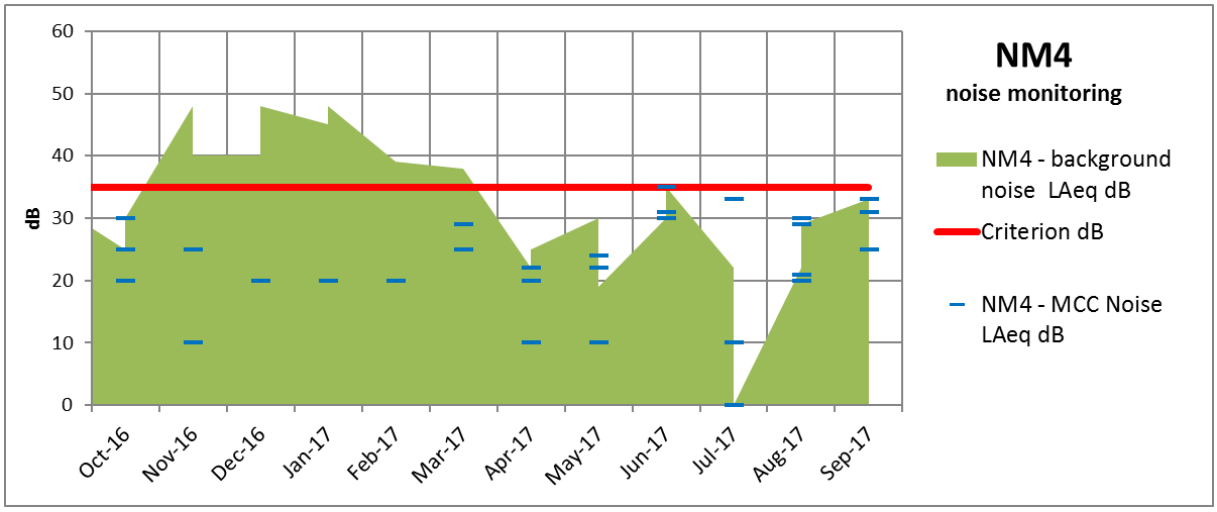
The following six (6) figures show the 'attended' noise monitoring results recorded over the last twelve (12) months.

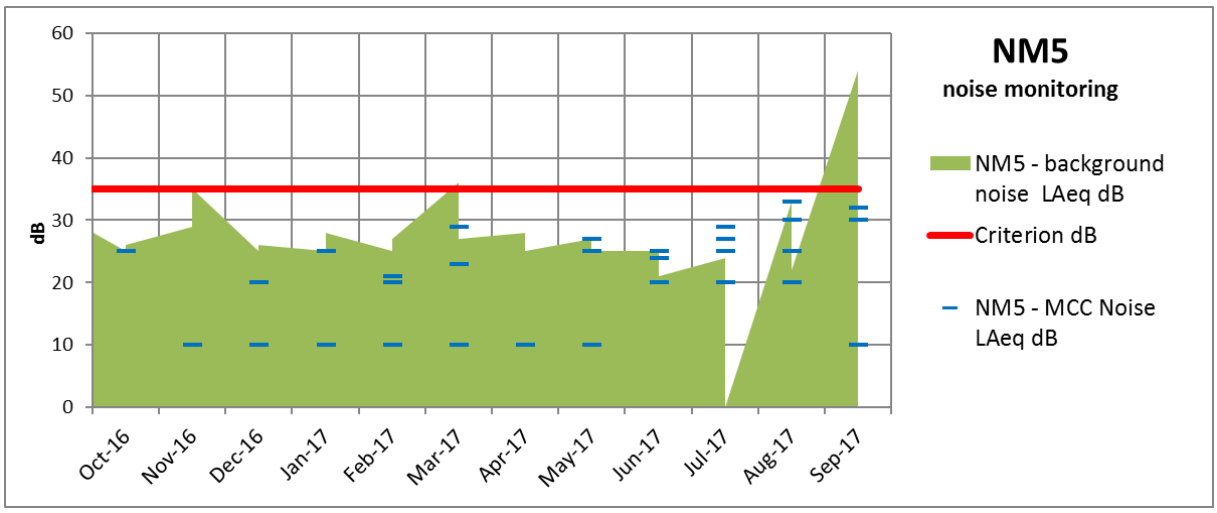
Green shading shows the $LA_{eq\ 15\ minute}$ background noise, the blue dash is the portion of the $LA_{eq\ 15\ minute}$ considered likely attributable to MCCM according to the acoustic engineer and the red line is the Project Approval criteria.

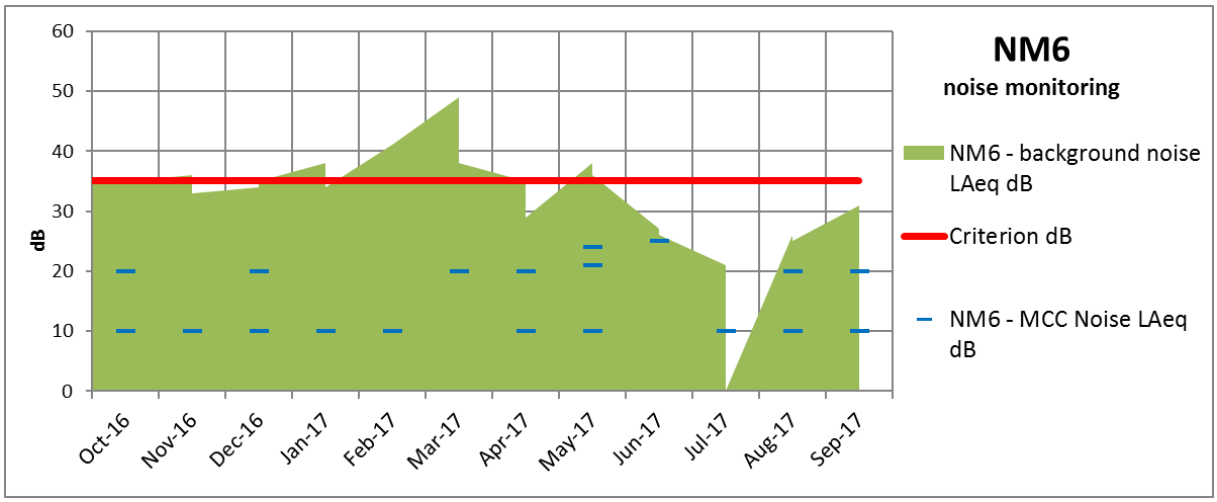







NM4
noise monitoring
NM4 - background noise LAeq dB
Criterion dB
NM4 - MCC Noise LAeq dB
dB
60
50
40
30
20
10
0
Oct-16
Nov-16
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17


NM5
noise monitoring
NM5 - background noise LAeq dB
Criterion dB
NM5 - MCC Noise LAeq dB
dB
60
50
40
30
20
10
0
Oct-16
Nov-16
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17


NM6
noise monitoring
NM6 - background noise LAeq dB
Criterion dB
NM6 - MCC Noise LAeq dB
dB
60
50
40
30
20
10
0
Oct-16
Nov-16
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17

Blast Monitoring

There have been 25 blasts at MCCM during Q3 2017.

All blast monitoring results recorded within the reporting period have been within the applicable overpressure and ground vibration limits specified in the respective approvals.

BM2 unit had a mechanical issue on the 28th and 29th September resulting in two results unable to be downloaded. The unit was promptly repaired and it is noted that all results recorded at other monitoring locations were within applicable criteria. Modelling was undertaken by an independent specialist that determined the predicted levels at BM2 for each blast would have been within the specified limits for overpressure and ground vibration.

Table 9 - Blast Results Summary Quarter 3 2017

Parameter	Units	Frequency	Number	Average	Max	100% Limit	Exceedance (Yes / No)
Noise	dB (Lin Peak)	All	25	94.5	107.1	120	No
Vibration	mm/s		25	0.18	0.92	10	No

Air Quality

Total Depositional Dust

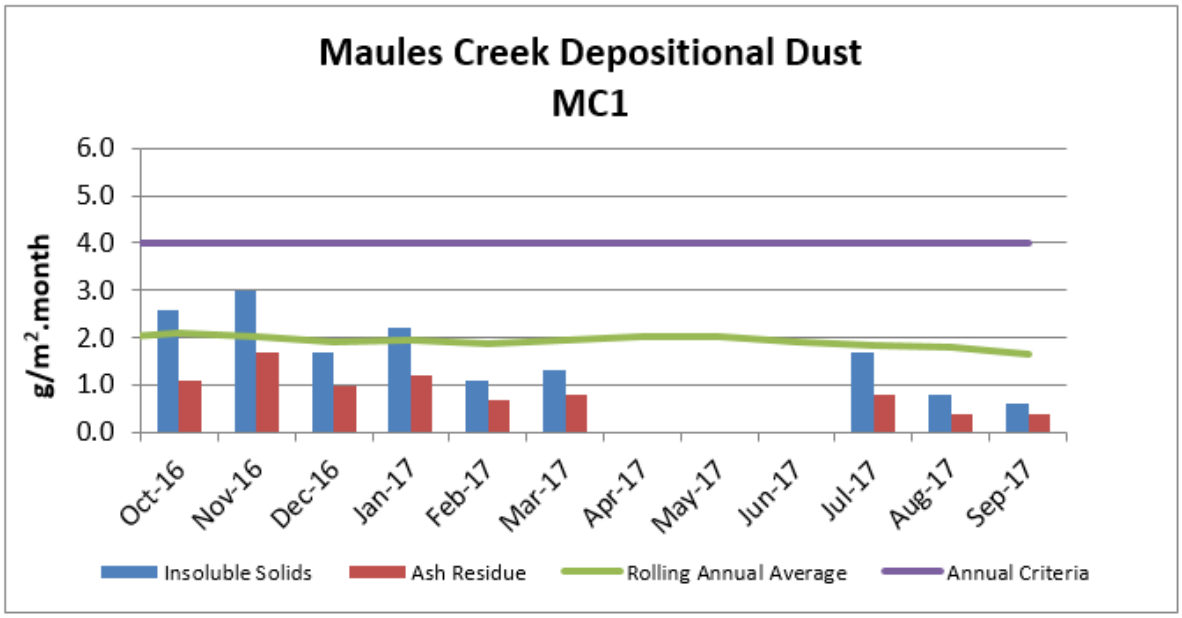
Table 10 - Deposited Dust Monitoring Results*

Month	MC1	MC2	MC3	MC4
Oct-16	2.6	1.2	0.8	0.5
Nov-16	3.0	1.5		1.0
Dec-16	1.7		2.7	2.2
Jan-17	2.2	2.1	0.7	0.8
Feb-17	1.1	1.4	1.2	1.5
Mar-17	1.3	1.8	2.8	2.0
Apr-17			1.9	1.4
May-17		3.7	1.5	1.1
Jun-17		1.1	1.3	1.3
Jul-17	1.7	0.7	20.2	1.3
Aug-17	0.8	1.6	3.2	0.9
Sep-17	0.6	3.0	1.9	1.9
Annual Avg	**1.67**	**1.81**	**3.47**	**1.33**
Project Avg 2010 - 2017	**2.09**	**2.16**	**1.79**	**1.31**

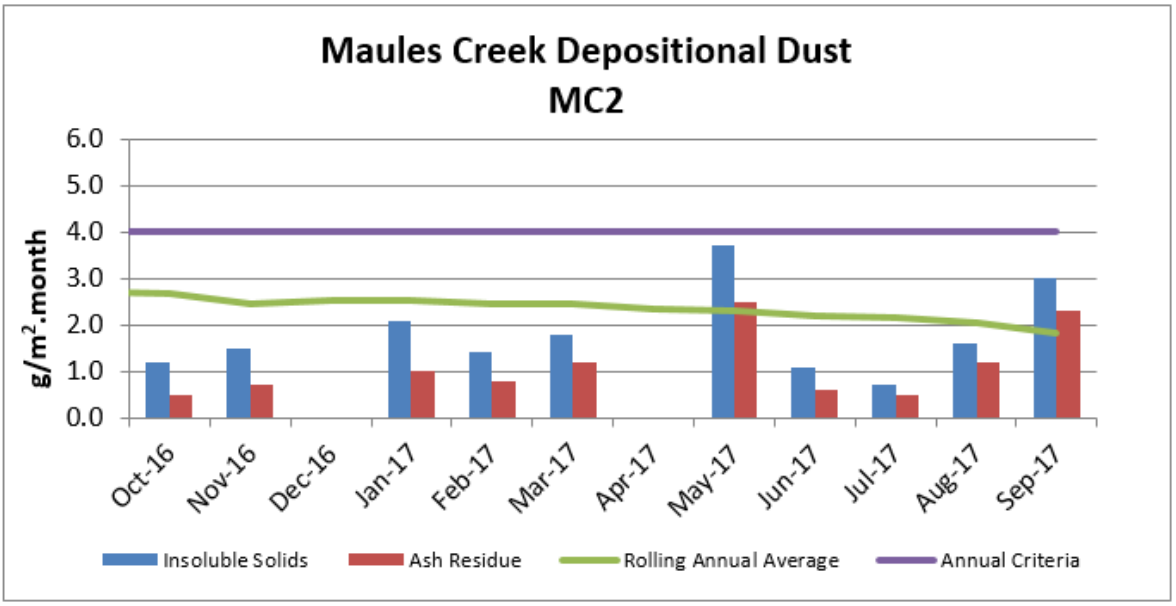
**Blank cells indicate sample periods where the sample has been contaminated and excluded from the results tables due to contaminated material (insect larvae, bird droppings, vegetation etc.).*

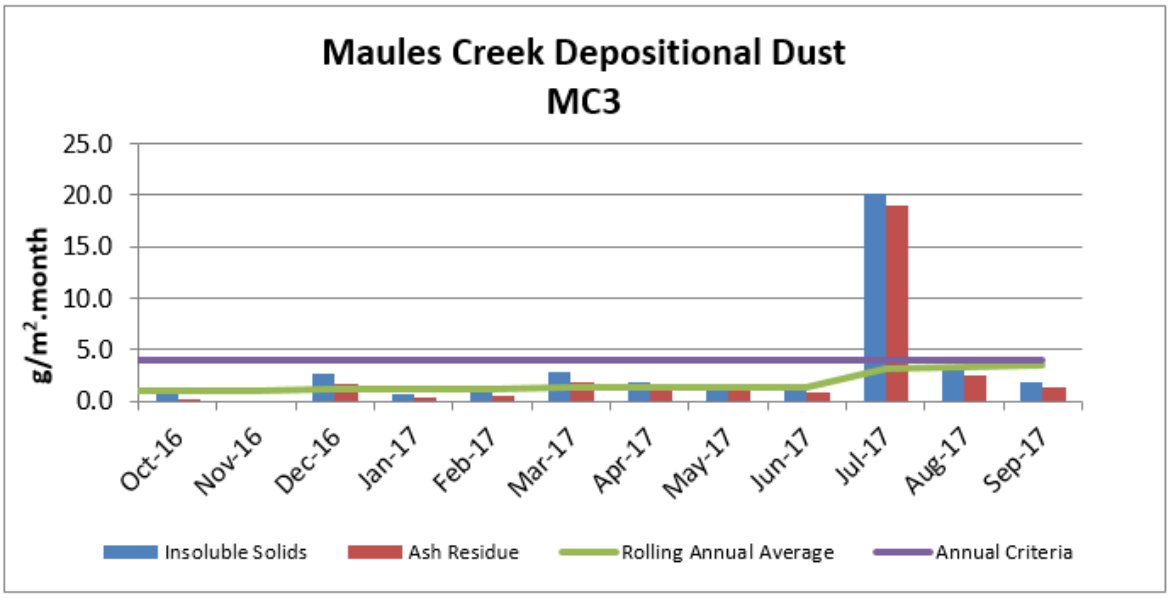
The monthly rolling annual average remains below the relevant Project Approval criteria of 4gm/m^2/month for the respective monitoring points, as shown on the graphs below. It is noted at point MC3 an elevated result was recorded in July. Following investigation, this result is inconsistent with historical monitoring results for both MC3 and other monitoring locations closer to the operation and therefore not be attributable to MCCM.

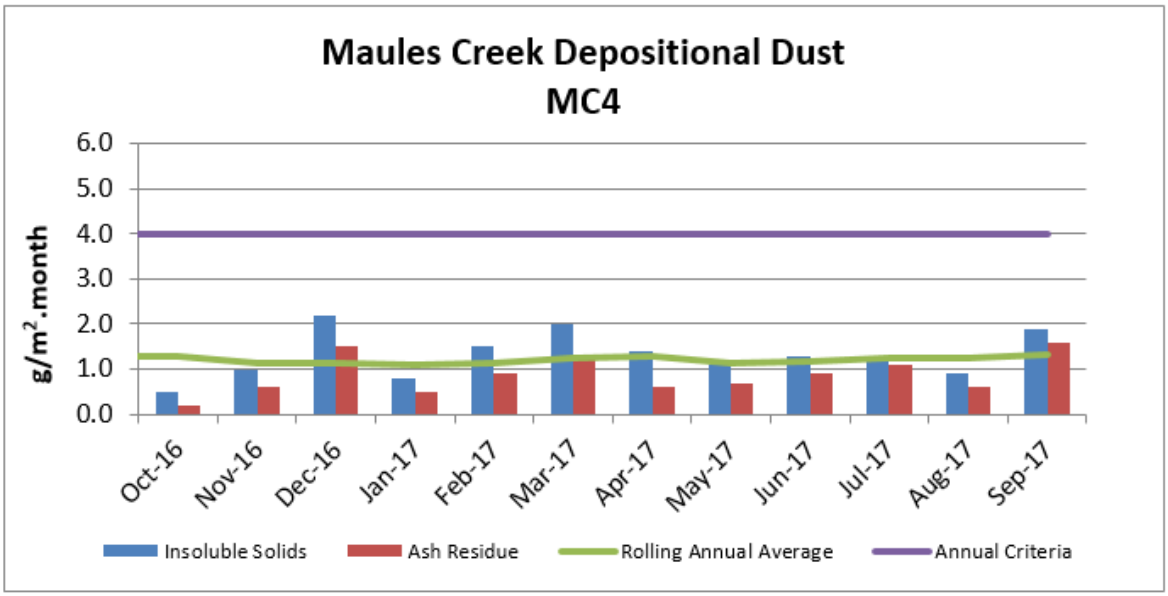
Deposited Dust Monitoring Figures (MC1 – MC4)



Note: The MC1 depositional dust gauge was contaminated with insect larvae and bird droppings during all monitoring periods of Q2 2017.


Maules Creek Depositional Dust
MC2
g/m².month
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Oct-16
Nov-16
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Insoluble Solids
Ash Residue
Rolling Annual Average
Annual Criteria

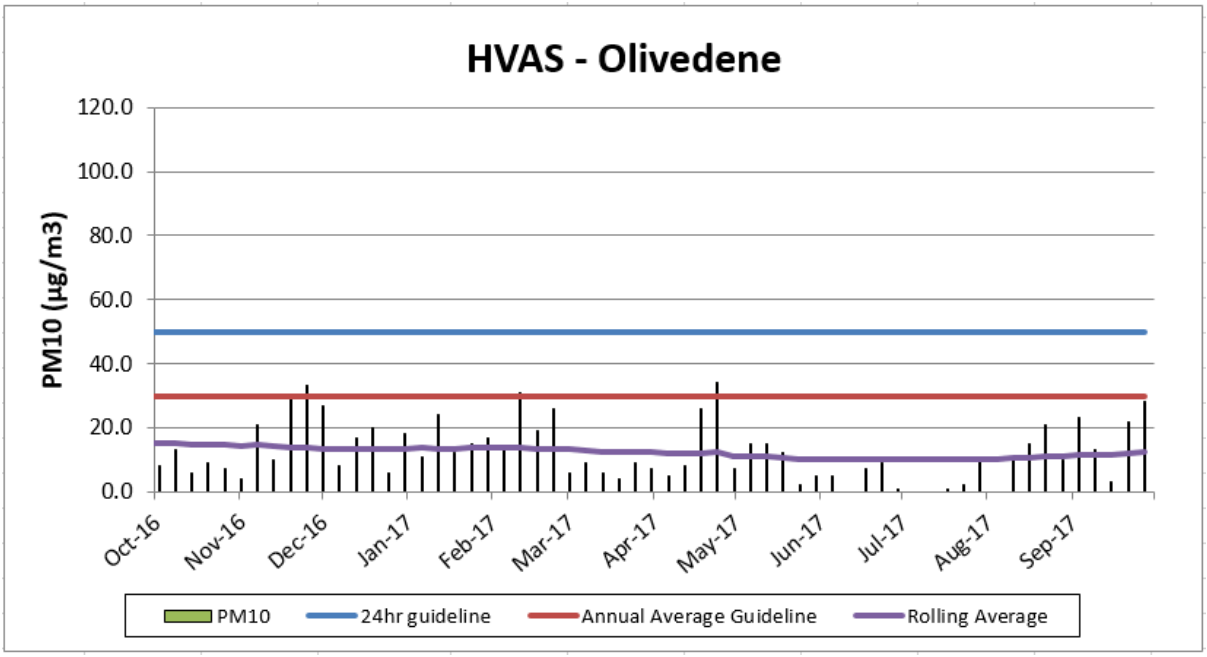

Maules Creek Depositional Dust
MC3
g/m².month
25.0
20.0
15.0
10.0
5.0
0.0
Oct-16
Nov-16
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Insoluble Solids
Ash Residue
Rolling Annual Average
Annual Criteria


Maules Creek Depositional Dust
MC4
g/m².month
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Oct-16
Nov-16
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Insoluble Solids
Ash Residue
Rolling Annual Average
Annual Criteria

High Volume Air Sampling (HVAS)

The HVAS monitor is located on the property 'Olivedene,' a mine owned property on Therribri Road.

HVAS PM_{10} Rolling Annual Average results during Q3 2017 remained well below the Annual Average Guideline 30 µg/m^3.

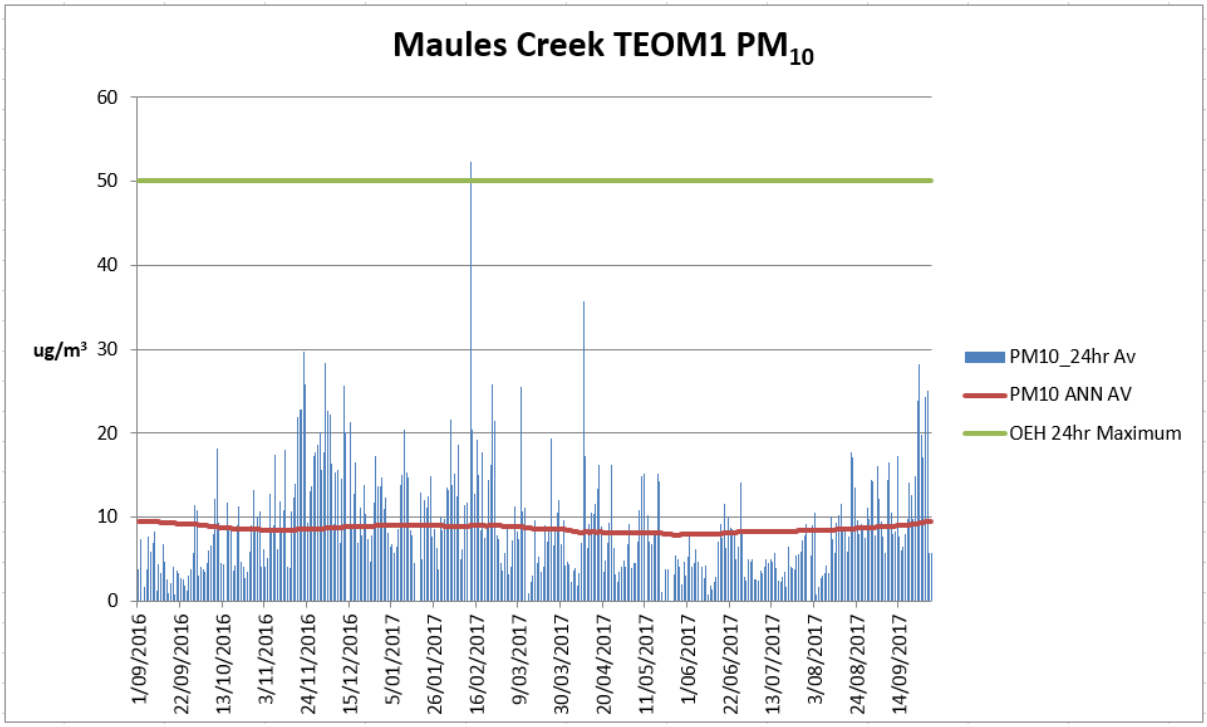


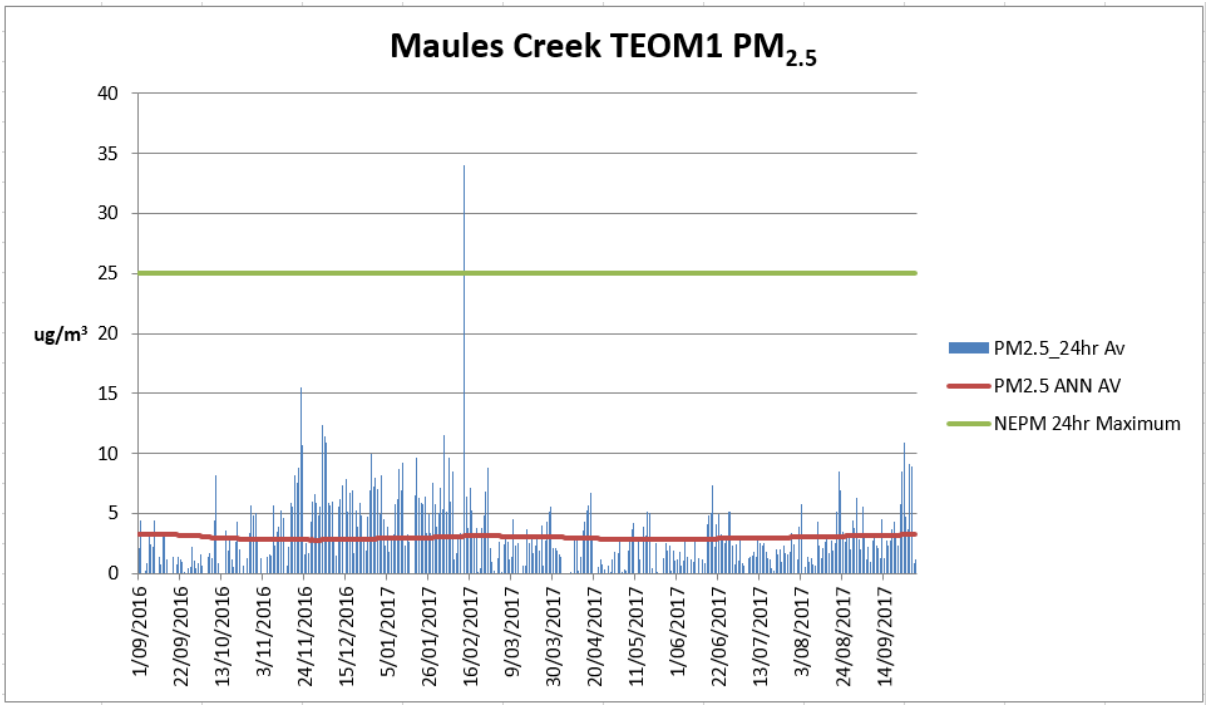
TEOM - PM_{10} Results

The annual average for PM_{10} results at the Maules Creek Coal TEOM remain significantly below the Project Approval annual average criteria of 30.0µg/m^3 (at 30 September 2017) as shown in the following figure. The PM_{10} average results have remained below this criteria since the TEOM was commissioned in November 2011.

Elevated PM_{10} and $PM_{2.5}$ results recorded by the TEOM on the 12th February 2017 were caused by a bushfire event in the local area. The elevated PM10 result on the 10th April 2017 was caused by an interstate dust storm event.

TEOM Result Figures – Particulate Matter $PM_{10µg/m3}$ and $PM_{2.5µg/m3}$





Water Monitoring

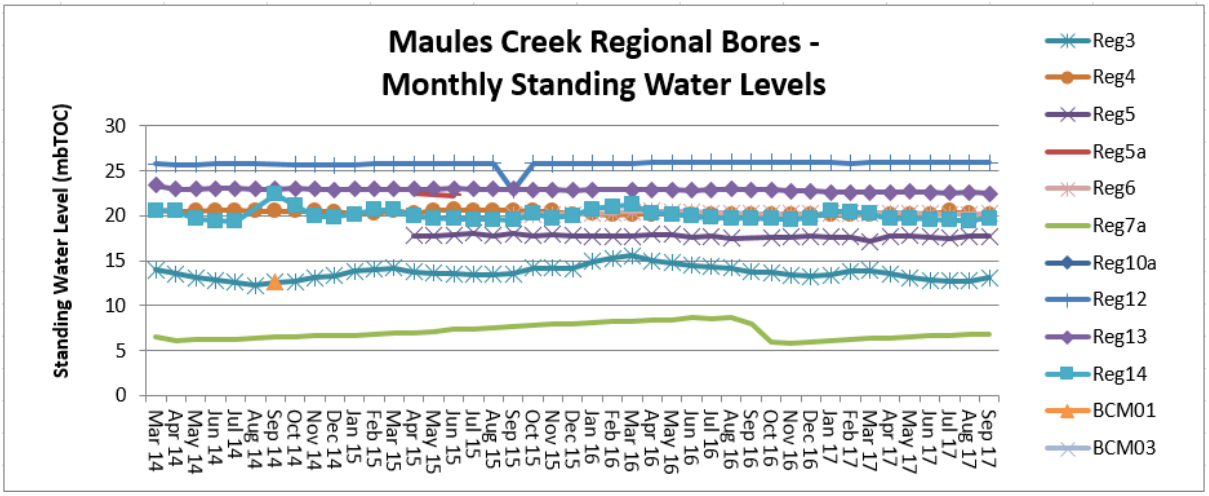
Groundwater

Groundwater monitoring results in open / standpipe piezometers show levels to be currently stable. 'RB' and 'Reg' series bores were installed between Q4 2013 and Q1 2014. BCM01, BCM03, Reg10 are shallow bores which have remained dry since construction in 2013.

Table 11 - Groundwater Level

SWL	RB01*	RB02*	RB05	Reg3	Reg4	Reg5a	Reg5b	Reg6	Reg7	Reg10	Reg12	Reg13	Reg14	BCM01	BCM03
Oct-16	167.53	140.47	58.66	13.69	20.17	17.6		20.24	6.03		25.98	22.87	19.65		
Nov-16	167.31	139.47	58.67	13.39	20.13	17.64		20.24	5.76		25.96	22.75	19.6		
Dec-16	167.37	***	58.65	13.25	20.09	17.7		20.27	5.94		25.9	22.72	19.76		
Jan-17	166.82	138.7	58.07	13.43	20.1	17.65		20.24	6.06		25.9	22.64	20.53		
Feb-17	166.36	138.38	58.59	13.82	20.1	17.64		20.27	6.25		25.88	22.62	20.43		
Mar-17	*	*	59.05	13.91	20.14	17.14		20.3	6.34		25.91	22.6	20.23		
Apr-17	*	*	58.69	13.58	20.16	17.71		20.32	6.45		25.92	22.64	19.7		
May-17	*	*	59.24	13.11	20.19	17.76		20.32	6.61		25.93	22.66	19.72		
Jun-17	*	*	56.86	12.87	20.17	17.68		20.23	6.66		25.89	22.61	19.56		
Jul-17	*	*	59.37	12.78	20.51	17.52		20.19	6.72		25.91	22.52	19.49		
Aug-17	*	*	59.56	12.75	20.22	17.7		20.19	6.8		25.93	22.61	19.42		
Sep-17	*	*	59.22	13.11	20.17	17.73		20.27	6.81		25.9	22.48	19.77		

Blank cells indicate sample periods where bores were dry.
**Bore decommissioned due to progression of mining area*
***Inaccessible*
****Unable to sample*



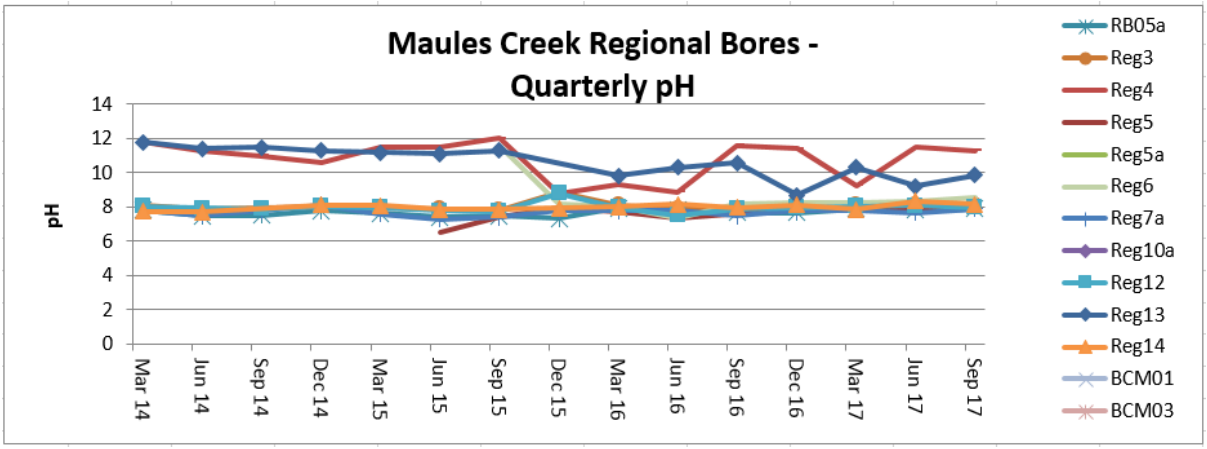
Acidity / Alkalinity (pH)

Baseline groundwater conditions are still being established, however, 2 bores (Reg4 and Reg13) show elevated pH levels (above pH 8.5) this has been determined to be as a result of low recharge volumes within these bores since installation.

Table 12 - Groundwater Results pH

pH	RB01a	RB02a	RB05a	Reg3	Reg4	Reg5	Reg5a	Reg6	Reg7a	Reg10a	Reg12	Reg13	Reg14	BCM01	BCM03
Dec-16	8.96	***	7.68	8.25	11.4	7.85		8.26	7.8		7.97	8.71	8.12		
Mar-17	*	*	7.89	8.17	9.26	7.97		8.23	7.81		8.05	10.3	7.88		
Jun-17	*	*	7.83	8.18	11.5	7.88		8.32	7.67		8.08	9.21	8.34		
Sep-17	*	*	7.89	8.12	11.3	8.12		8.58	7.92		7.96	9.85	8.15		

Blank cells indicate sample periods where bores were dry.
**Bore decommissioned due to progression of mining area*
***Inaccessible*
****Unable to sample*



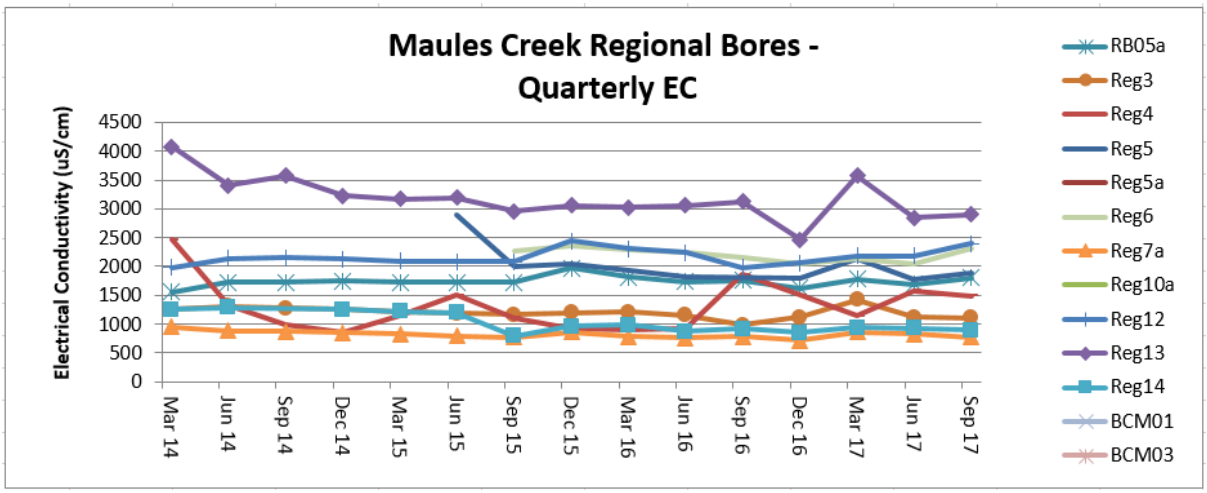
Electrical Conductivity

Laboratory Electrical Conductivity (EC) levels are all within historic groundwater EC range of 500µs/cm to 2,500µs/cm, with the exception of monitoring bore Reg13 which has a historic groundwater EC range of 2,000µs/cm to 4,700µs/cm.

Table 13 – Groundwater Results EC

EC	RB01a	RB02a	RB05a	Reg3	Reg4	Reg5	Reg5a	Reg6	Reg7a	Reg10a	Reg12	Reg13	Reg14	BCM01	BCM03
Dec-16	1200	***	1620	1120	1500	1800		2050	714		2060	2460	856		
Mar-17	*	*	1780	1420	1140	2130		2140	860		2190	3570	938		
Jun-17	*	*	1690	1120	1580	1780		2050	833		2190	2850	935		
Sep-17	*	*	1800	1110	1490	1890		2320	774		2400	2900	893		

Blank cells indicate sample periods where bores were dry.
**Bore decommissioned due to progression of mining area*
***Inaccessible*
****Unable to sample*



Wet Weather Discharge Sampling

Between 1st July and 30th September 2017, Maules Creek Coal AWS recorded 35.8mm of rainfall. There were no rainfall levels that exceeded the 38.4mm value over a consecutive 5 day period. There were no wet weather discharge events during Q3 2017 and therefore conditions L2.4 and L2.5 of EPL20221 were not triggered for this quarter.

Note: As per wording of condition L2.5 of EPL20221, 38.4mm equates to the 5 day 90 percentile rainfall for the Gunnedah region.

Surface Water – Creeks and Rivers

Routine surface water monitoring is conducted in surrounding creeks and rivers on a monthly basis. Results for parameters including pH, EC and Total Suspended Solids (TSS) are shown in the tables and figures below.

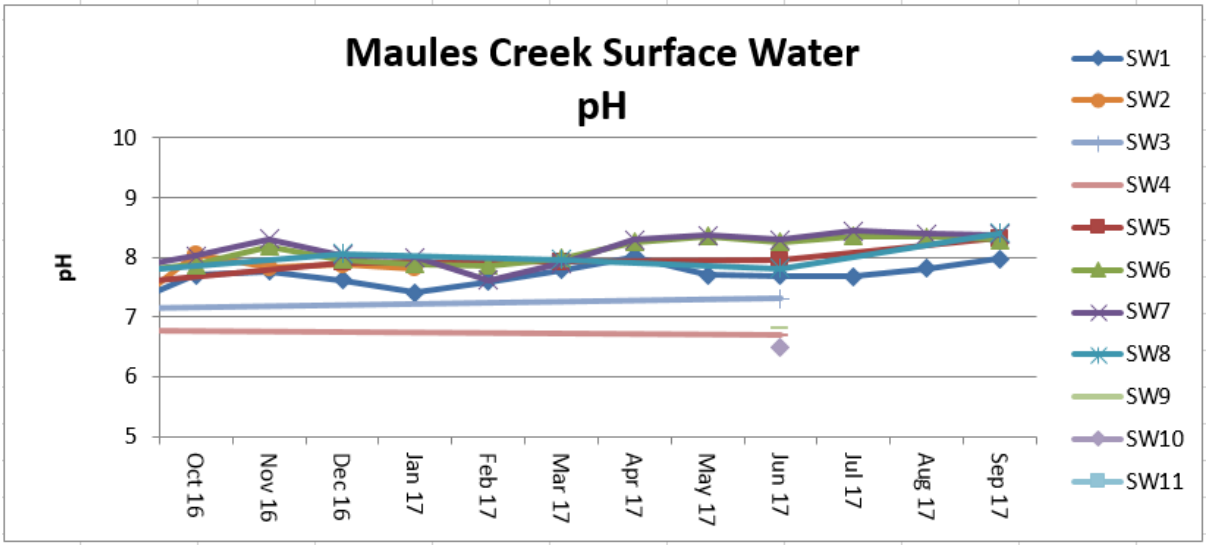
Acidity / Alkalinity (pH)

Monitoring results for pH in creeks and rivers surrounding MCCM are all trending within the ANZECC acceptable range for Irrigation, Ecosystem Health and Recreation. Back Creek and upper Maules Creek are ephemeral systems.

Table 14 – Surface Water Results pH

Lab pH	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11
Oct-16	7.71	8.05				7.88	8.03				
Nov-16	7.77	7.83				8.19	8.31				
Dec-16	7.62	7.88			7.91	7.96	8.04	8.06			
Jan-17	7.41	7.82				7.89	8				
Feb-17	7.6					7.86	7.62				
Mar-17	7.79				7.93	7.99	7.9	7.96			
Apr-17	8.01					8.26	8.3				
May-17	7.7					8.36	8.37				
Jun-17	7.69		7.31	6.69	7.95	8.26	8.3	7.81	6.81	6.49	
Jul-17	7.68					8.36	8.44				
Aug-17	7.81					8.35	8.39				
Sep-17	7.98				8.32	8.29	8.38	8.41			

Blank cells indicate sample periods where waterways were dry.
**Too wet to access monitoring locations*



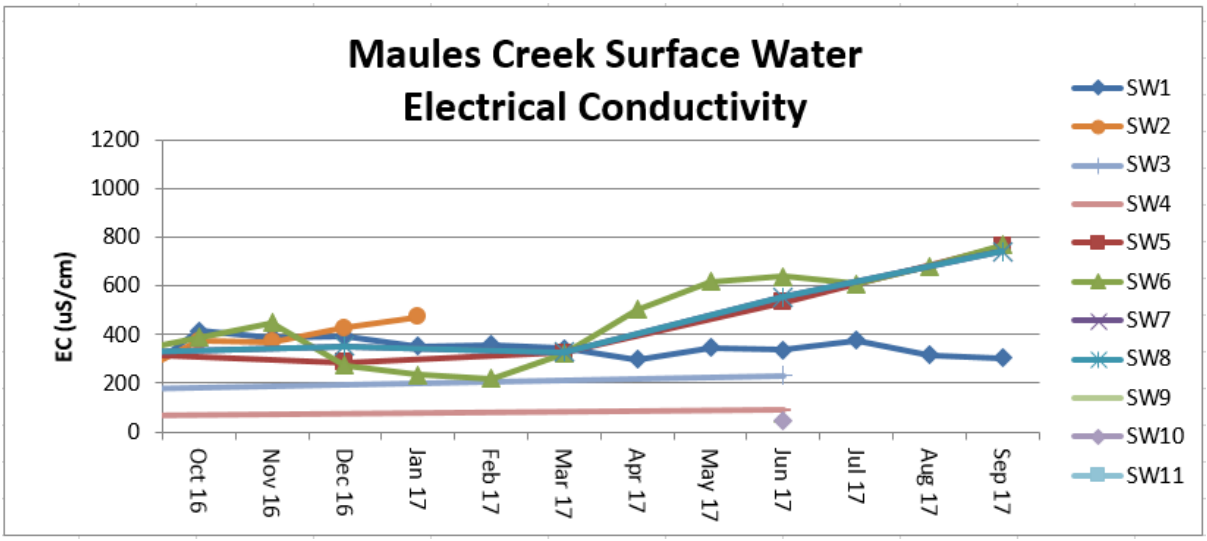
Electrical Conductivity

Surface water EC trends have remained consistent with SW5, SW6, SW7 and SW8 all historically variable. SW5, SW6, SW7 and SW8 are points along the Namoi River which is subject to regulated and variable flow regimes.

Table 15 – Surface Water Results EC

Lab EC	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11
Oct-16	416	373				387	385				
Nov-16	388	370				447	461				
Dec-16	394	428			285	274	292	352			
Jan-17	351	472				233	143				
Feb-17	357					218	222				
Mar-17	343				325	322	324	328			
Apr-17	297					503	511				
May-17	345					618	611				
Jun-17	337		232	89	534	639	649	554	40	46	
Jul-17	375					607	612				
Aug-17	317					681	685				
Sep-17	303				763	769	766	742			

Blank cells indicate sample periods where waterways were dry.
**Too wet to access monitoring locations*



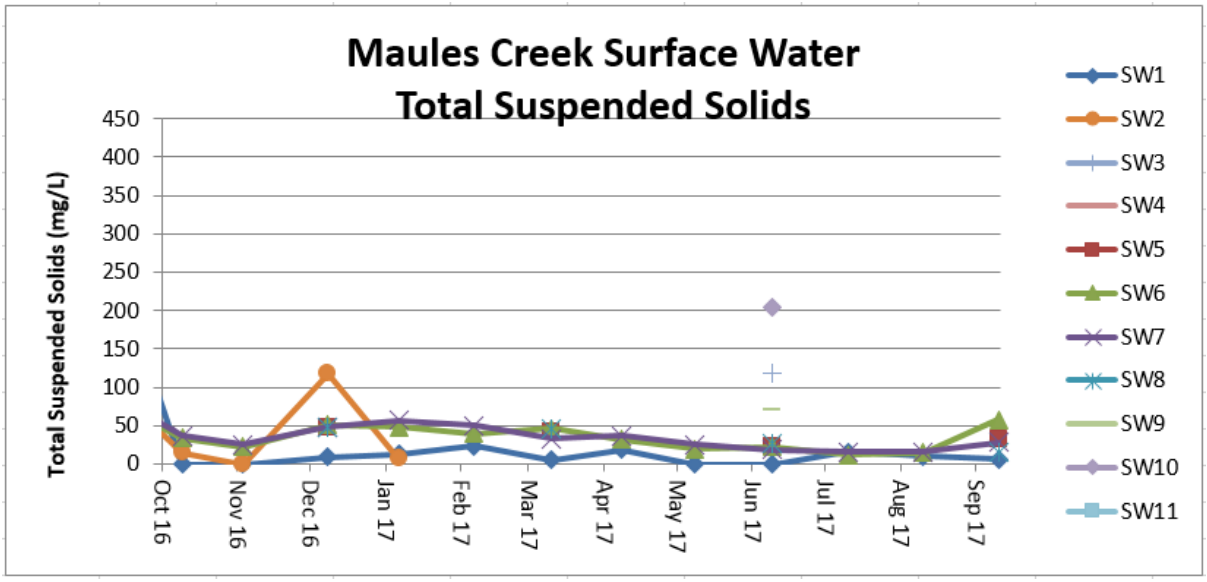
Total Suspended Solids (TSS)

Surface water TSS trends have remained generally consistent with historical results. SW5, SW6, SW7 and SW8 are historically variable as they are located along the Namoi River which is subject to regulated and variable flow regimes. A rainfall event in June 2017 enabled sampling at sites along Back Creek which is ephemeral and generally dry.

Table 16 – Surface Water Results TSS

TSS	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11
Oct-16	<5	15				34	37				
Nov-16	<5	<5				22	25				
Dec-16	9	118			47	51	48	48			
Jan-17	13	7				48	57				
Feb-17	23					40	50				
Mar-17	5				42	46	33	46			
Apr-17	19					32	37				
May-17	<5					20	25				
Jun-17	<5		118	26	23	22	19	27	70	205	
Jul-17	16					12	16				
Aug-17	10					15	16				
Sep-17	6				32	58	28	16			

Blank cells indicate sample periods where waterways were dry.
**Too wet to access monitoring locations*



Rehabilitation

No final landform areas are available for rehabilitation since the commencement of mining in August 2014.

Community Complaints

16 complaints were received during Q3 2017. Please refer to the Community Complaints Register published on the Whitehaven Coal Maules Creek website.