

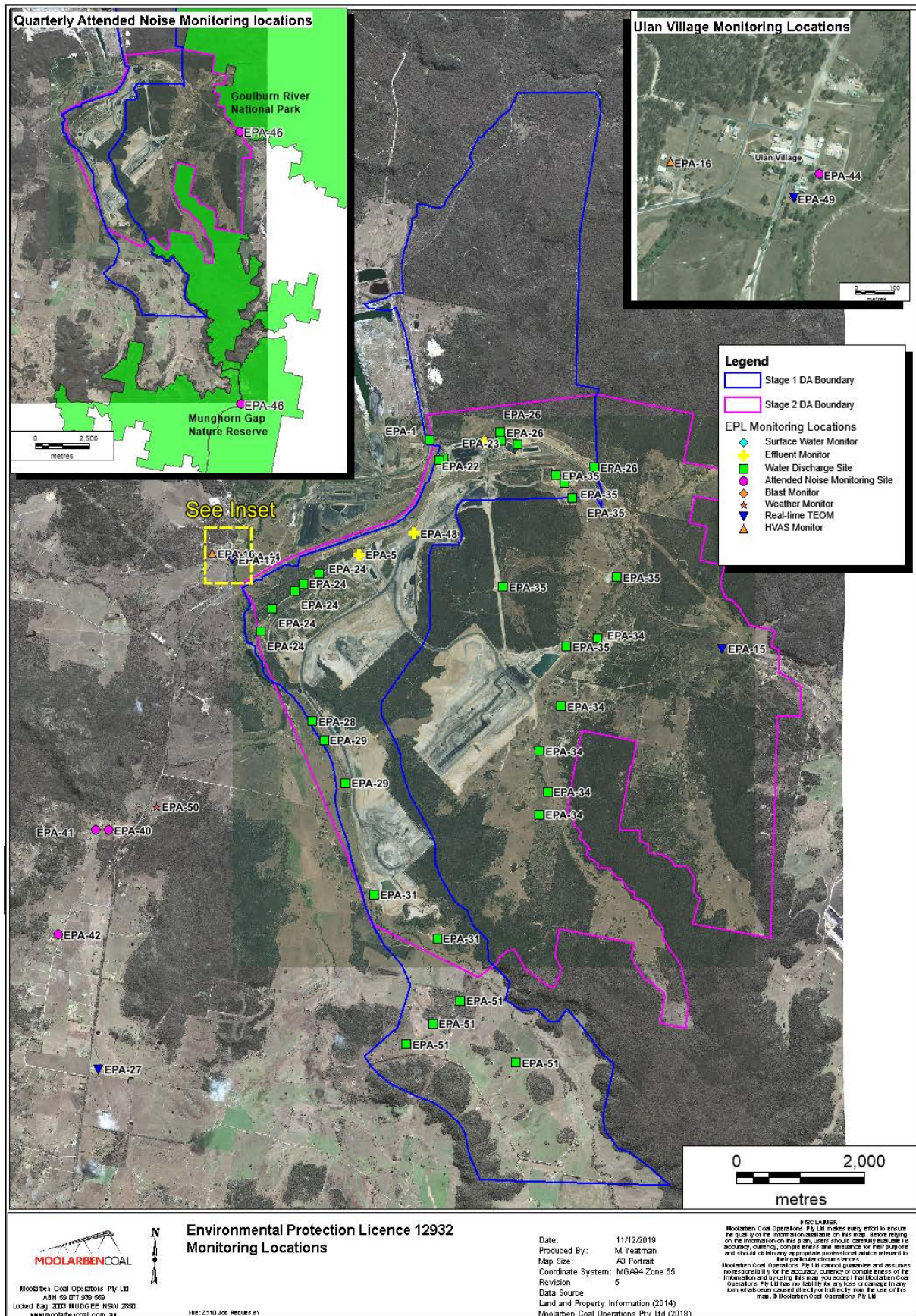


# Monthly Environmental Monitoring Report

For the Month Ending 31 May 2020

<b>Name of Operation</b>	Moolarben Coal Complex
<b>Name of License Holder</b>	Moolarben Coal Operations Pty Ltd
<b>Premises</b>	Moolarben Coal Mine 12 Ulan-Wollar Rd, Ulan NSW 2850
<b>Environmental Protection Licence Number</b>	12932
<b>EPL Link</b>	<a href="http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=75423&amp;SYSUID=1&amp;LICID=12932">http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=75423&amp;SYSUID=1&amp;LICID=12932</a>
<b>Premises</b>	Moolarben Coal Mine
<b>Reporting Period</b>	1 May 2020 to 31 May 2020
<b>Date last sampled data obtained</b>	10 June 2020
<b>Publication Date</b>	24 June 2020
<b>Version</b>	1
<b>Author</b>	L. Martin
<b>Approver</b>	T. Cini

### EPL 12932 MCO Environmental Monitoring Network



**Concentration Monitoring Summary**

**Air Quality Monitoring**

EPL ID	Location	Pollutant	Unit of Measure	No. of Samples collected and analysed	EPL Monitoring Frequency	12 mth rolling average			Annual 100%ile concentration limit
						Min Value	Mean Value	Max Value	
15	TEOM 6	PM10	µg/m <sup>3</sup>	97.4%	Continuous	20.5	20.6	20.8	25
16	PM01	PM10	µg/m <sup>3</sup>	5	Every 6 days	16.5	16.9	17.5	25
N/A	PM02	PM10	µg/m <sup>3</sup>	5	Every 6 days	15.4	15.9	16.6	25
17	TEOM 1	PM10	µg/m <sup>3</sup>	98%	Continuous	17.1	17.2	17.3	25
27	TEOM 7	PM10	µg/m <sup>3</sup>	96.5%	Continuous	14.0	14.3	14.6	25
27	TEOM 7	PM2.5	µg/m <sup>3</sup>	96.5%	Continuous	5.8	5.9	6.0	8
N/A	TEOM 4	PM10	µg/m <sup>3</sup>	98%	Continuous	17.8	18.1	18.3	25

EPL ID	Location	Pollutant	Unit of Measure	EPL Monitoring Frequency	No. of Samples collected and analysed	Min Value	Mean Value	Max Value	100%ile concentration limit
15	TEOM 6	PM10	µg/m <sup>3</sup>	Continuous (24 Hr Average)	97%	5.7	13.4	30.8	50
16	PM01	PM10	µg/m <sup>3</sup>	Every 6 days	5	7	10.6	17	50
N/A	PM02	PM10	µg/m <sup>3</sup>	N/A	5	9	11.6	19	50
17	TEOM 1	PM10	µg/m <sup>3</sup>	Continuous (24 Hr Average)	98%	5.3	11.4	18.3	50
27	TEOM 7	PM10	µg/m <sup>3</sup>	Continuous (24 Hr Average)	96.5%	2.8	6.5	12.9	50
27	TEOM 7	PM2.5	µg/m <sup>3</sup>	Continuous (24 Hr Average)	96.5%	0.4	3.2	5.4	25
N/A	TEOM 4	PM10	µg/m <sup>3</sup>	N/A (24 Hr Average)	98%	5.3	9.5	13.8	50

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Surface Water Quality Monitoring

EPL ID	Location	Pollutant	Unit of Measure	No. of Samples collected and analysed	Date Sampled	Min Value	Mean Value	Max Value
N/A	SW01	Conductivity	µS/cm	0	18/05/2020	*	*	*
		pH	pH	0	18/05/2020	*	*	*
		Total Suspended Solids	mg/L	0	18/05/2020	*	*	*
N/A	SW02	Conductivity	µS/cm	1	18/05/2020	682	682	682
		pH	pH	1	18/05/2020	7.94	7.94	7.94
		Total Suspended Solids	mg/L	1	18/05/2020	<5	<5	<5
N/A	SW04	Conductivity	µS/cm	0	18/05/2020	No Flow	No Flow	No Flow
		pH	pH	0	18/05/2020	No Flow	No Flow	No Flow
		Total Suspended Solids	mg/L	0	18/05/2020	No Flow	No Flow	No Flow
N/A	SW05	Conductivity	µS/cm	1	18/05/2020	747	747	747
		pH	pH	1	18/05/2020	6.4	6.4	6.4
		Total Suspended Solids	mg/L	1	18/05/2020	8	8	8
N/A	SW07	Conductivity	µS/cm	1	18/05/2020	1860	1860	1860
		pH	pH	1	18/05/2020	7.31	7.31	7.31
		Total Suspended Solids	mg/L	1	18/05/2020	<5	<5	<5
N/A	SW08	Conductivity	µS/cm	1	18/05/2020	4030	4030	4030
		pH	pH	1	18/05/2020	5	5	5
		Total Suspended Solids	mg/L	1	18/05/2020	16	16	16
N/A	SW09	Conductivity	µS/cm	1	18/05/2020	4630	4630	4630
		pH	pH	1	18/05/2020	6.83	6.83	6.83
		Total Suspended Solids	mg/L	1	18/05/2020	12	12	12
N/A	SW12	Conductivity	µS/cm	1	18/05/2020	29	29	29
		pH	pH	1	18/05/2020	6.45	6.45	6.45
		Total Suspended Solids	mg/L	1	18/05/2020	<5	<5	<5
N/A	SW15	Conductivity	µS/cm	1	18/05/2020	268	268	268
		pH	pH	1	18/05/2020	6.35	6.35	6.35
		Total Suspended Solids	mg/L	1	18/05/2020	22	22	22
N/A	SW16	Conductivity	µS/cm	1	18/05/2020	262	262	262
		pH	pH	1	18/05/2020	6.67	6.67	6.67

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EPL ID	Location	Pollutant	Unit of Measure	No. of Samples collected and analysed	Date Sampled	Min Value	Mean Value	Max Value
		Total Suspended Solids	mg/L	1	18/05/2020	<5	<5	<5
N/A	SW17	Conductivity	µS/cm	0	18/05/2020	No Flow	No Flow	No Flow
		pH	pH	0	18/05/2020	No Flow	No Flow	No Flow
		Total Suspended Solids	mg/L	0	18/05/2020	No Flow	No Flow	No Flow
N/A	SW18	Conductivity	µS/cm	1	18/05/2020	457	457	457
		pH	pH	1	18/05/2020	5.35	5.35	5.35
		Total Suspended Solids	mg/L	1	18/05/2020	<5	<5	<5

\* No Access to monitoring site.

**Blasting**

EPL ID	Location	Pollutant	Unit of Measure	Frequency	No. of Blasts during the reporting period	Min Value	Mean Value	Max Value	Limits dBL
49	BM1 Ulan School	Blast Overpressure	dBL	Every Blast	15	80.8	94.3	107.7	115 (95% of Blasts) 120 (100% of Blasts)
		Ground Vibration	mm/s	Every Blast		0.08	0.15	0.25	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)
N/A	BM5 Ridge Rd	Blast Overpressure	dBL	Every Blast	15	86.0	97.2	106.1	115 (95% of Blasts) 120 (100% of Blasts)
		Ground Vibration	mm/s	Every Blast		0.07	0.17	0.35	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)
N/A	BM8 Moolarben Rd	Blast Overpressure	dBL	Every Blast	15	81.4	95.5	104.0	115 (95% of Blasts) 120 (100% of Blasts)
		Ground Vibration	mm/s	Every Blast		0.03	0.08	0.17	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)

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**Noise**

EPL ID	Location	Site ID	Monitoring Type	Frequency	Measured Level <sup>1,2,3</sup>	Measured Level <sup>1,2,3</sup>	Noise Emission Limit(s) <sup>4</sup>	Monitoring Completed during the period	(Potential) Non-Compliance/Breach <sup>5</sup>
					LA1,1minute dB (15min)	LAeq dB (1min)			
44	Ulan Public School	NA1	Compliance - Attended	Monthly	NA	NM	Daytime (07:00 – 18:00) LAeq,15minute: 43 dB	Yes	Nil
N/A	Cope Road (Receiver 258)	NA11	Management - Attended	Annually	IA	IA	-	Yes	NA
N/A	Lagoons Road	NA2	Validation - Attended	Annually	-	-	-	No	-
42	Winchester Crescent	NA12	Compliance/Validation - Attended	Quarterly	30	29	Night time (22:00 – 07:00) LAeq,15minute: 35 dB LA1,1minute: 45 dB	Yes	Nil
N/A	Upper Ridge Road (Receiver 176)	NA3	Validation - Attended	Annually	-	-	-	No	-
40, 41	Lower Ridge Road	NA6	Compliance -Attended	Monthly	35	32	Night time (22:00 – 07:00) LAeq,15minute: 37 dB LA1,1minute: 45 dB	Yes	Nil
N/A	Moolarben Road (Receiver 28)	NA10	Validation - Attended	Annually	-	-	-	No	-
46	Goulburn River National Park	GRNP	Compliance -Attended	Quarterly	NA	IA	All periods LAeq,15minute: 50 dB	Yes	Nil
46	Munghorn Gap Nature Reserve	MGNR	Compliance -Attended	Quarterly	NA	26	All periods LAeq,15minute: 50 dB	Yes	Nil

1. NA indicates meteorological conditions during the measurement did not correspond with any modelled meteorological conditions, and were not applicable for comparison
2. IA is Inaudible. When site only noise is noted as IA, there was no noise from the source of interest audible at the monitoring location
3. Site-only noise levels attributed to MCO, including modifying factors where applicable
4. As detailed in the EPL, noise emission limits apply under all meteorological conditions except:



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- Wind speeds greater than 3 m/s at 10 metres above ground level; or
  - Stability class F temperature inversion conditions, and wind speeds greater than 2 m/s at 10 metres above ground level; or
  - Stability class G temperature inversions
5. NA in last column means atmospheric conditions outside those specified in EPL, therefore criterion was not applicable

**Effluent Discharge Points**

EPL ID	Pollutant	Unit of Measure	No. of samples required by Licence	No. of Samples collected and analysed	Date Sampled	Min Value	Mean Value	Max Value
5	BOD	mg/L	Quarterly	0				
	Nitrogen (total)	mg/L	Quarterly	0				
	Oil and Grease	mg/L	Quarterly	0				
	pH	pH	Quarterly	0				
	Phosphorus (total)	mg/L	Quarterly	0				
	Total Suspended Solids	mg/L	Quarterly	0				
22	BOD	mg/L	Quarterly	0				
	Nitrogen (total)	mg/L	Quarterly	0				
	Oil and Grease	mg/L	Quarterly	0				
	pH	pH	Quarterly	0				
	Phosphorus (total)	mg/L	Quarterly	0				
	Total Suspended Solids	mg/L	Quarterly	0				
23	BOD	mg/L	Quarterly	0				
	Nitrogen (total)	mg/L	Quarterly	0				
	Oil and Grease	mg/L	Quarterly	0				
	pH	pH	Quarterly	0				
	Phosphorus (total)	mg/L	Quarterly	0				
	Total Suspended Solids	mg/L	Quarterly	0				
48	BOD	mg/L	Quarterly	0				
	Nitrogen (total)	mg/L	Quarterly	0				
	Oil and Grease	mg/L	Quarterly	0				
	pH	pH	Quarterly	0				
	Phosphorus (total)	mg/L	Quarterly	0				
	Total Suspended Solids	mg/L	Quarterly	0				

\* Effluent system not able to be sampled due to unscheduled maintenance

**Discharge Points**

EPL ID	Pollutant	Unit of Measure	No. of samples required by Licence	No. of Samples collected and analysed	Min Value	Mean Value	Max Value	100%ile concentration limit
1	Conductivity	µS/cm	Continuous during discharge	Continuous during discharge	209	221	235	685
	Oil and Grease	mg/L	Weekly during discharge	2	<2	<2	<2	10
	pH	pH	Continuous during discharge	Continuous during discharge	6.97	7.03	7.1	6.5-8.5
	Total Suspended Solids	mg/L	Weekly during discharge	2	<1	<1	<1	50
	Turbidity	NTU	Continuous during discharge	Continuous during discharge	0	0.05	0.23	25
	Discharge Volume	Megalitres per day	Continuous during discharge	Continuous during discharge	0	6.0	9.9	10
2	Conductivity	µS/cm	Continuous during discharge	No licensed discharges during the period				685
	Oil and Grease	mg/L	Weekly during discharge					10
	pH	pH	Continuous during discharge					6.5-8.5
	Total Suspended Solids	mg/L	Weekly during discharge					50
	Turbidity	NTU	Continuous during discharge					25
	Discharge Volume	Megalitres per day	Continuous during discharge					
24	Oil and Grease	mg/L	Daily During Discharge	No licensed discharges during the period				10
	pH	pH	Daily During Discharge					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge					50
	Turbidity	NTU	Daily During Discharge					25
26	Oil and Grease	mg/L	Daily During Discharge	No licensed discharges during the period				10
	pH	pH	Daily During Discharge					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge					50
	Turbidity	NTU	Daily During Discharge					25

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EPL ID	Pollutant	Unit of Measure	No. of samples required by Licence	No. of Samples collected and analysed	Min Value	Mean Value	Max Value	100%ile concentration limit
28	Conductivity	µS/cm	Continuous during discharge	No licensed discharges during the period				685
	Oil and Grease	mg/L	Weekly during discharge					10
	pH	pH	Continuous during discharge					6.5-8.5
	Total Suspended Solids	mg/L	Weekly during discharge					50
	Turbidity	NTU	Continuous during discharge					25
	Discharge Volume	Kilolitres per day	Continuous during discharge					
29	Oil and Grease	mg/L	Daily During Discharge	No licensed discharges during the period				10
	pH	pH	Daily During Discharge					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge					50
	Turbidity	NTU	Daily During Discharge					25
31	Oil and Grease	mg/L	Daily During Discharge	No licensed discharges during the period				10
	pH	pH	Daily During Discharge					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge					50
	Turbidity	NTU	Daily During Discharge					25
33	Oil and Grease	mg/L	Daily During Discharge	No licensed discharges during the period				10
	pH	pH	Daily During Discharge					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge					50
	Turbidity	NTU	Daily During Discharge					25
35	Oil and Grease	mg/L	Daily During Discharge	No licensed discharges during the period				10
	pH	pH	Daily During Discharge					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge					50
	Turbidity	NTU	Daily During Discharge					25
51	Oil and Grease	mg/L	Daily During Discharge	No licensed discharges during the period				10
	pH	pH	Daily During Discharge					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge					50
	Turbidity	NTU	Daily During Discharge					25