

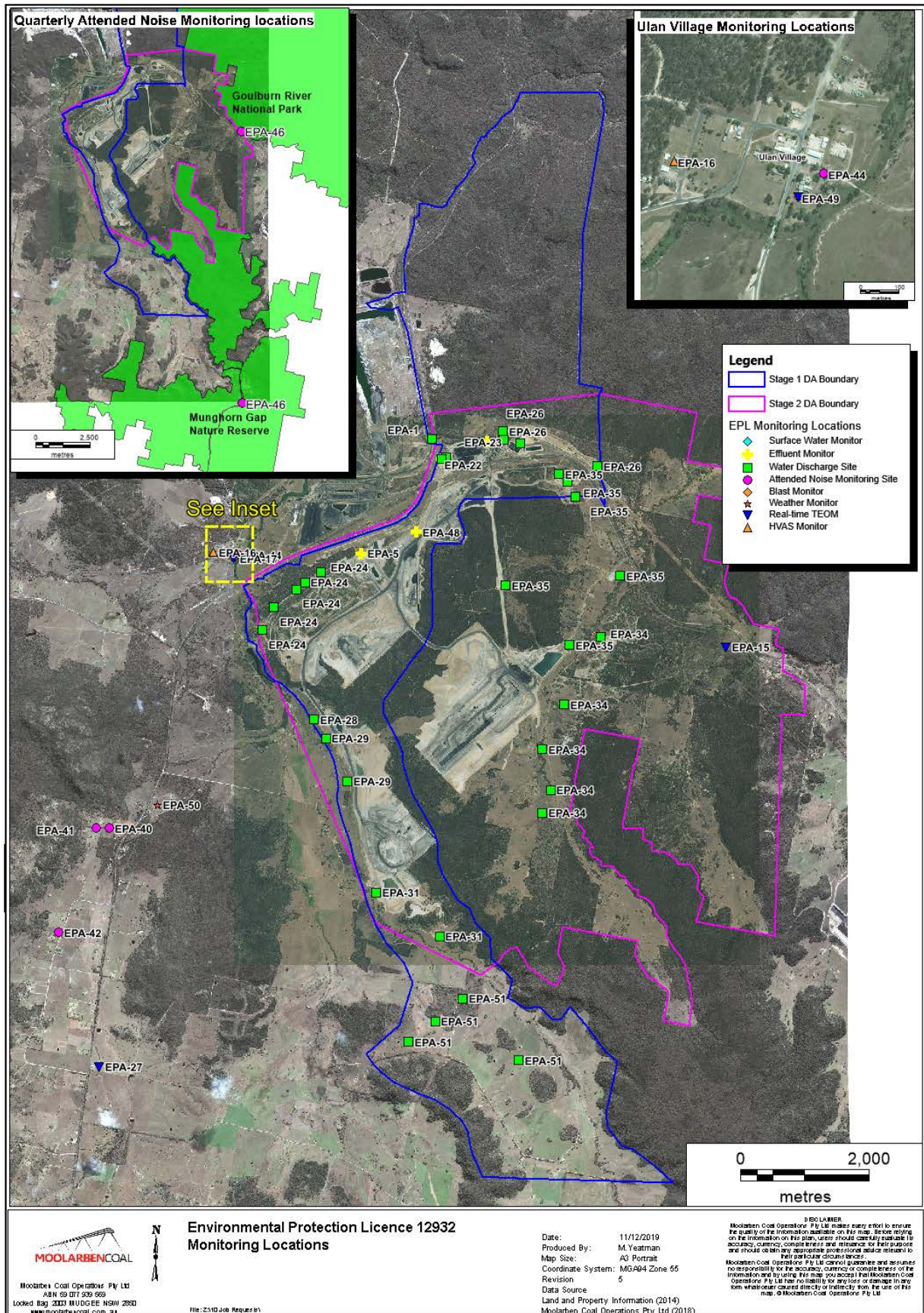


Monthly Environmental Monitoring Report

For the Month Ending 29 February 2020

Name of Operation	Moolarben Coal Complex
Name of License Holder	Moolarben Coal Operations Pty Ltd
Premises	Moolarben Coal Mine 12 Ulan-Wollar Rd, Ulan NSW 2850
Environmental Protection Licence Number	12932
EPL Link	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=75423&SYSUID=1&LICID=12932
Premises	Moolarben Coal Mine
Reporting Period	1 February 2020 to 29 February 2020
Date last sampled data obtained	13 March 2020
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Version	1
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EPL 12932 MCO Environmental Monitoring Network



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**Environmental Protection Licence 12932
Monitoring Locations**

Date: 11/12/2019
Produced By: M. Yeatman
Map Size: A3 Portrait
Coordinate System: MGA94 Zone 55
Revision: 5
Data Source: Land and Property Information (2014)
Moolarben Coal Operations Pty Ltd (2018)

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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 ³	93.3%	Continuous	20.61	20.92	21.08	25
16	PM01	PM10	µg/m ³	5	Every 6 days	18.67	18.94	19.16	25
N/A	PM02	PM10	µg/m ³	5	N/A	17.55	18.01	18.39	25
17	TEOM 1	PM10	µg/m ³	95.0%	Continuous	17.72	17.88	18.11	25
27	TEOM 7	PM10	µg/m ³	94.9%	Continuous	16.02	16.21	16.52	25
27	TEOM 7	PM2.5	µg/m ³	94.9%	Continuous	6.54	6.57	6.62	8
N/A	TEOM 4	PM10	µg/m ³	95.0%	N/A	19.67	20.01	20.42	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 ³	Continuous (24 Hr Average)	93.3%	3.95	19.17	49.61 (80.35*)	50
16	PM01	PM10	µg/m ³	Every 6 days	5	5.0	13.25	21.0 (55.0*)	50
N/A	PM02	PM10	µg/m ³	N/A	5	5.0	10.5	16.0 (62.0*)	50
17	TEOM 1	PM10	µg/m ³	Continuous (24 Hr Average)	95.0%	6.07	19.08	45.74 (72.59*)	50
27	TEOM 7	PM10	µg/m ³	Continuous (24 Hr Average)	94.9%	3.45	15.88	49.62 (58.82*)	50
27	TEOM 7	PM2.5	µg/m ³	Continuous (24 Hr Average)	94.9%	1.75	6.23	23.14	25
N/A	TEOM 4	PM10	µg/m ³	N/A (24 Hr Average)	95.0%	7.49	18.18	48.13 (59.43*)	50

*Elevated readings excluded based on exceptional event (dust & smoke)

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	1	12/02/2020	782	782	782
		pH	pH	1	12/02/2020	7.46	7.46	7.46
		Total Suspended Solids	mg/L	1	12/02/2020	<5	<5	<5
N/A	SW02	Conductivity	µS/cm	1	12/02/2020	802	802	802
		pH	pH	1	12/02/2020	7.2	7.2	7.2
		Total Suspended Solids	mg/L	1	12/02/2020	5	5	5
N/A	SW04	Conductivity	µS/cm	0	12/02/2020	No Flow	No Flow	No Flow
		pH	pH	0	12/02/2020	No Flow	No Flow	No Flow
		Total Suspended Solids	mg/L	0	12/02/2020	No Flow	No Flow	No Flow
N/A	SW05	Conductivity	µS/cm	1	12/02/2020	787	787	787
		pH	pH	1	12/02/2020	4.7	4.7	4.7
		Total Suspended Solids	mg/L	1	12/02/2020	38	38	38
N/A	SW07	Conductivity	µS/cm	1	12/02/2020	3430	3430	3430
		pH	pH	1	12/02/2020	6.65	6.65	6.65
		Total Suspended Solids	mg/L	1	12/02/2020	14	14	14
N/A	SW08	Conductivity	µS/cm	1	12/02/2020	999	999	999
		pH	pH	1	12/02/2020	6.76	6.76	6.76
		Total Suspended Solids	mg/L	1	12/02/2020	92	92	92
N/A	SW09	Conductivity	µS/cm	1	12/02/2020	4250	4250	4250
		pH	pH	1	12/02/2020	6.29	6.29	6.29
		Total Suspended Solids	mg/L	1	12/02/2020	24	24	24
N/A	SW10	Conductivity	µS/cm	0	12/02/2020	Dry	Dry	Dry
		Oil and Grease	mg/L	0	12/02/2020	Dry	Dry	Dry
		pH	pH	0	12/02/2020	Dry	Dry	Dry
		Total Suspended Solids	mg/L	0	12/02/2020	Dry	Dry	Dry
N/A	SW11	Conductivity	µS/cm	1	12/02/2020	250	250	250
		Oil and Grease	mg/L	1	12/02/2020	<5	<5	<5
		pH	pH	1	12/02/2020	5.92	5.92	5.92
		Total Suspended Solids	mg/L	1	12/02/2020	12	12	12

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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
N/A	SW12	Conductivity	µS/cm	1	12/02/2020	2610	2610	2610
		pH	pH	1	12/02/2020	3.1	3.1	3.1
		Total Suspended Solids	mg/L	1	12/02/2020	<5	<5	<5
N/A	SW15	Conductivity	µS/cm	0	12/02/2020	Dry	Dry	Dry
		pH	pH	0	12/02/2020	Dry	Dry	Dry
		Total Suspended Solids	mg/L	0	12/02/2020	Dry	Dry	Dry
N/A	SW16	Conductivity	µS/cm	0	12/02/2020	No Flow	No Flow	No Flow
		pH	pH	0	12/02/2020	No Flow	No Flow	No Flow
		Total Suspended Solids	mg/L	0	12/02/2020	No Flow	No Flow	No Flow
N/A	SW17	Conductivity	µS/cm	0	12/02/2020	No Flow	No Flow	No Flow
		pH	pH	0	12/02/2020	No Flow	No Flow	No Flow
		Total Suspended Solids	mg/L	0	12/02/2020	No Flow	No Flow	No Flow
N/A	SW18	Conductivity	µS/cm	0	12/02/2020	Dry	Dry	Dry
		pH	pH	0	12/02/2020	Dry	Dry	Dry
		Total Suspended Solids	mg/L	0	12/02/2020	Dry	Dry	Dry
N/A	SW19	Conductivity	µS/cm	0	12/02/2020	No Flow	No Flow	No Flow
		pH	pH	0	12/02/2020	No Flow	No Flow	No Flow
		Total Suspended Solids	mg/L	0	12/02/2020	No Flow	No Flow	No Flow
N/A	SW20	Conductivity	µS/cm	0	12/02/2020	Dry	Dry	Dry
		pH	pH	0	12/02/2020	Dry	Dry	Dry
		Total Suspended Solids	mg/L	0	12/02/2020	Dry	Dry	Dry

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	13	85.2	97.85	111.4	115 (95% of Blasts) 120 (100% of Blasts)
		Ground Vibration	mm/s	Every Blast		0.03	0.12	0.25	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)
N/A	BM5 Ridge Rd	Blast Overpressure	dBL	Every Blast	13	85.9	99.42	107.8	115 (95% of Blasts) 120 (100% of Blasts)
		Ground Vibration	mm/s	Every Blast		0.04	0.09	0.16	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 ^{1,2,3}	Measured Level ^{1,2,3}	Noise Emission Limit(s) ⁴	Monitoring Completed during the period	(Potential) Non-Compliance/Breach ⁵
					LA1,1minute dB (15min)	LAeq dB (1min)			
44	Ulan Public School	NA1	Compliance - Attended	Monthly	IA	IA	Daytime (07:00 – 18:00) LAeq,15minute: 43 dB	Yes	NA
N/A	Cope Road (Receiver 258)	NA11	Management - Attended	Annually	-	-	-	No	-
N/A	Lagoons Road	NA2	Validation - Attended	Annually	-	-	-	No	-
42	Winchester Crescent	NA12	Compliance/Validation - Attended	Quarterly	IA	IA	Night time (22:00 – 07:00) LAeq,15minute: 35 dB LA1,1minute: 45 dB	Yes	NA
N/A	Upper Ridge Road (Receiver 176)	NA3	Validation - Attended	Annually	-	-	-	No	-
40, 41	Lower Ridge Road	NA6	Compliance -Attended	Monthly	<30	<30	Night time (22:00 – 07:00) LAeq,15minute: 37 dB LA1,1minute: 45 dB	Yes	NA
N/A	Moolarben Road (Receiver 28)	NA10	Validation - Attended	Annually	-	-	-	No	-
46	Goulburn River National Park	GRNP	Compliance -Attended	Quarterly	IA	IA	All periods LAeq,15minute: 50 dB	No	Nil
46	Munghorn Gap Nature Reserve	MGNR	Compliance -Attended	Quarterly	IA	IA	All periods LAeq,15minute: 50 dB	No	NA

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	1	11/02/2020	<2	<2	<2
	Nitrogen (total)	mg/L	Quarterly	1	11/02/2020	28.3	28.3	28.3
	Oil and Grease	mg/L	Quarterly	1	11/02/2020	<5	<5	<5
	pH	pH	Quarterly	1	11/02/2020	7.2	7.2	7.2
	Phosphorus (total)	mg/L	Quarterly	1	11/02/2020	3.43	3.43	3.43
	Total Suspended Solids	mg/L	Quarterly	1	11/02/2020	44	44	44
22	BOD	mg/L	Quarterly	0	11/02/2020	*	*	*
	Nitrogen (total)	mg/L	Quarterly	0	11/02/2020	*	*	*
	Oil and Grease	mg/L	Quarterly	0	11/02/2020	*	*	*
	pH	pH	Quarterly	0	11/02/2020	*	*	*
	Phosphorus (total)	mg/L	Quarterly	0	11/02/2020	*	*	*
	Total Suspended Solids	mg/L	Quarterly	0	11/02/2020	*	*	*
23	BOD	mg/L	Quarterly	1	11/02/2020	16	16	16
	Nitrogen (total)	mg/L	Quarterly	1	11/02/2020	6	6	6
	Oil and Grease	mg/L	Quarterly	1	11/02/2020	<5	<5	<5
	pH	pH	Quarterly	1	11/02/2020	7.0	7.0	7.0
	Phosphorus (total)	mg/L	Quarterly	1	11/02/2020	0.25	0.25	0.25
	Total Suspended Solids	mg/L	Quarterly	1	11/02/2020	64	64	64
48	BOD	mg/L	Quarterly	1	13/02/2020	66	66	66
	Nitrogen (total)	mg/L	Quarterly	1	13/02/2020	9.8	9.8	9.8
	Oil and Grease	mg/L	Quarterly	1	13/02/2020	<5	<5	<5
	pH	pH	Quarterly	1	13/02/2020	7.0	7.0	7.0
	Phosphorus (total)	mg/L	Quarterly	1	13/02/2020	0.77	0.77	0.77
	Total Suspended Solids	mg/L	Quarterly	1	13/02/2020	22	22	22

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

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Discharge Points

Moolarben Coal did not have any licensed discharges during the period.

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	100%ile concentration limit
1	Conductivity	µS/cm	Continuous during discharge	0					685
	Iron	mg/L	Daily During Discharge	0					
	Oil and Grease	mg/L	Daily During Discharge	0					10
	pH	pH	Continuous during discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Continuous during discharge	0					25
	Zinc	mg/L	Daily During Discharge	0					
	Discharge Volume	Megalitres per day	Continuous during discharge	0					10
2	Conductivity	µS/cm	Continuous during discharge	0					685
	Iron	mg/L	Daily During Discharge	0					
	Oil and Grease	mg/L	Daily During Discharge	0					10
	pH	pH	Continuous during discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Continuous during discharge	0					25
	Zinc	mg/L	Daily During Discharge	0					
	Discharge Volume	Megalitres per day	Continuous during discharge	0					
24	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
26	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
28	Conductivity	µS/cm	Continuous during discharge	0					685
	Iron	mg/L	Daily During Discharge	0					
	Oil and Grease	mg/L	Daily During Discharge	0					10

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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	100%ile concentration limit
	pH	pH	Continuous during discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Continuous during discharge	0					25
	Zinc	mg/L	Daily During Discharge	0					
	Discharge Volume	Kilolitres per day	Continuous during discharge	0					
29	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
31	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
35	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25
51	Oil and Grease	mg/L	Daily During Discharge	0					
	pH	pH	Daily During Discharge	0					6.5-8.5
	Total Suspended Solids	mg/L	Daily During Discharge	0					50
	Turbidity	NTU	Daily During Discharge	0					25