

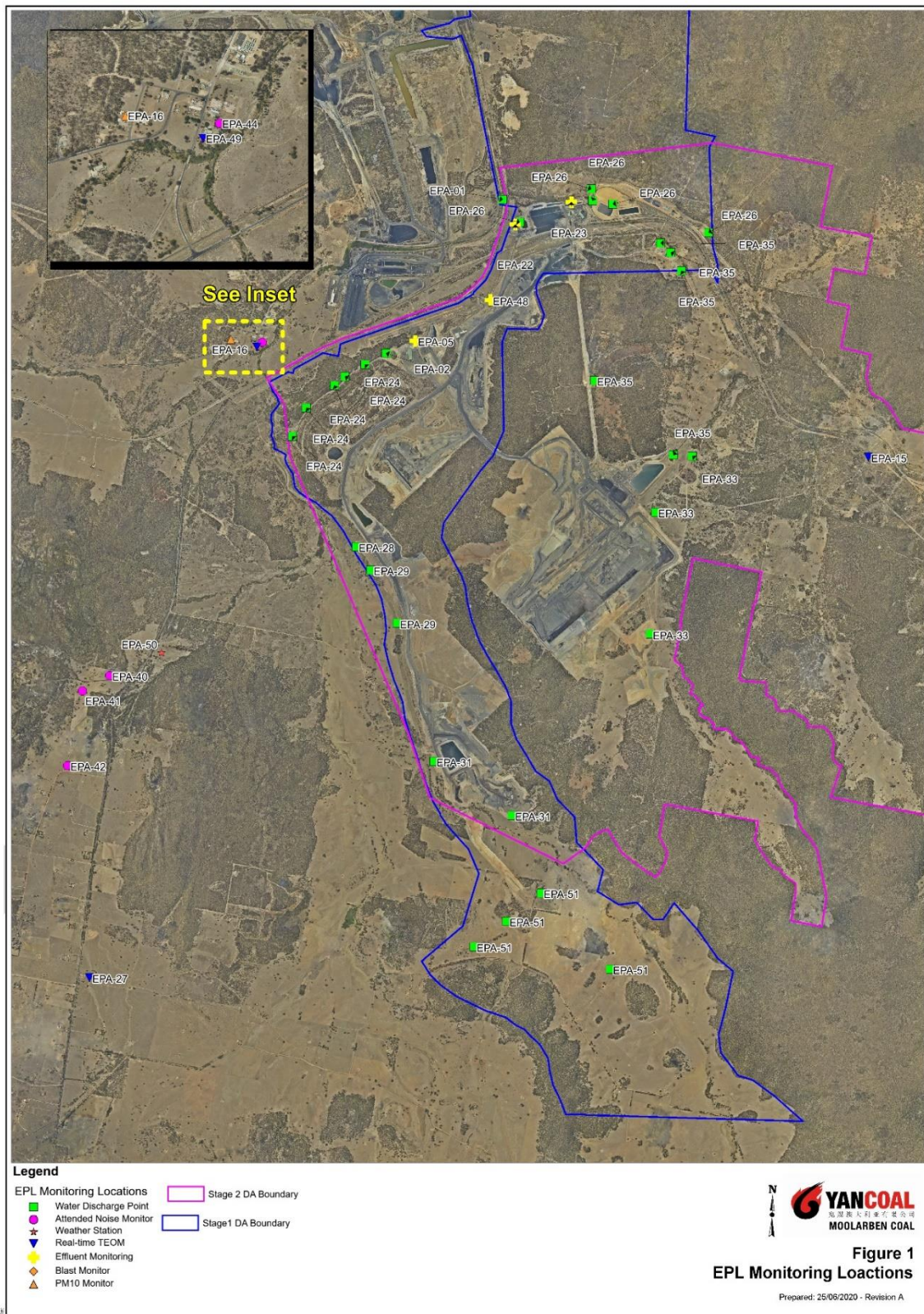


Monthly Environmental Monitoring Report

For the Month Ending 28 February 2021

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 2021 to 28 February 2021
Date last sampled data obtained	26 March 2021
Publication Date	30 March 2021
Version	1
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Approver	T. Cini

EPL 12932 MCO Environmental Monitoring Network



Concentration Monitoring Summary

Air Quality Monitoring

EPL ID	Location	Pollutant	Unit of Measure	EPL Monitoring Frequency	No. of Samples collected and analysed	12 mth rolling average			Annual concentration limit	Exceedance (Yes/No)
						Min Value	Mean Value	Max Value		
15	TEOM 6	PM10	µg/m ³	Continuous	100 %	15.2	15.4	15.6	25	No
16	PM01	PM10	µg/m ³	Every 6 days	5	11.4	11.5	11.7	25	No
N/A	PM02	PM10	µg/m ³	N/A	5	12.0	12.1	12.3	25	No
17	TEOM 1	PM10	µg/m ³	Continuous	100%	13.9	14.0	14.2	25	No
27	TEOM 7	PM10	µg/m ³	Continuous	96.6%	9.3	9.5	9.8	25	No
27	TEOM 7	PM2.5	µg/m ³	Continuous	96.6%	4.8	4.8	4.9	8	No
N/A	TEOM 4	PM10	µg/m ³	Continuous	100%	12.6	12.8	13.1	25	No

EPL ID	Location	Pollutant	Unit of Measure	EPL Monitoring Frequency	No. of Samples collected and analysed	Min Value	Mean Value	Max Value	24 Hr concentration limit ^a	Exceedance (Yes/No)
15	TEOM 6	PM10	µg/m ³	Continuous (24 Hr Average)	100 %	3.8	13.2	21.8	50	No
16	PM01	PM10	µg/m ³	Every 6 days	5	6.1	9.7	13.5	50	No
N/A	PM02	PM10	µg/m ³	N/A	5	6.0	8.9	14.7	50	No
17	TEOM 1	PM10	µg/m ³	Continuous (24 Hr Average)	100%	4.1	13.4	22.1	50	No
27	TEOM 7	PM10	µg/m ³	Continuous (24 Hr Average)	96.6%	3.3	7.1	13.0	50	No
27	TEOM 7	PM2.5	µg/m ³	Continuous (24 Hr Average)	96.6%	2.5	5.5	11.5	25	No
N/A	TEOM 4	PM10	µg/m ³	N/A (24 Hr Average)	100%	4.7	10.4	19.8	50	No

Surface Water Quality Monitoring

EPL ID	Location	Pollutant	Unit of Measure	No. of Samples collected and analysed	Date Sampled	Results
N/A	SW01	Conductivity	µS/cm	1	16/2/2021	532
		pH	pH	1	16/2/2021	7.7
		Total Suspended Solids	mg/L	1	16/2/2021	<5
N/A	SW02	Conductivity	µS/cm	1	16/2/2021	530
		pH	pH	1	16/2/2021	7.8
		Total Suspended Solids	mg/L	1	16/2/2021	<5
N/A	SW04	Conductivity	µS/cm	0	16/2/2021	No Flow
		pH	pH	0	16/2/2021	No Flow
		Total Suspended Solids	mg/L	0	16/2/2021	No Flow
N/A	SW05	Conductivity	µS/cm	1	16/2/2021	597
		pH	pH	1	16/2/2021	7.0
		Total Suspended Solids	mg/L	1	16/2/2021	<5
N/A	SW07	Conductivity	µS/cm	1	16/2/2021	2490
		pH	pH	1	16/2/2021	7.4
		Total Suspended Solids	mg/L	1	16/2/2021	15
N/A	SW08	Conductivity	µS/cm	1	16/2/2021	3320
		pH	pH	1	16/2/2021	7.2
		Total Suspended Solids	mg/L	1	16/2/2021	12
N/A	SW09	Conductivity	µS/cm	1	16/2/2021	4410
		pH	pH	1	16/2/2021	6.8
		Total Suspended Solids	mg/L	1	16/2/2021	105
N/A	SW12	Conductivity	µS/cm	1	16/2/2021	309
		pH	pH	1	16/2/2021	6.9
		Total Suspended Solids	mg/L	1	16/2/2021	<5
N/A	SW15	Conductivity	µS/cm	1	16/2/2021	185
		pH	pH	1	16/2/2021	6.7
		Total Suspended Solids	mg/L	1	16/2/2021	24
N/A	SW16	Conductivity	µS/cm	1	16/2/2021	237
		pH	pH	1	16/2/2021	6.9

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EPL ID	Location	Pollutant	Unit of Measure	No. of Samples collected and analysed	Date Sampled	Results
		Total Suspended Solids	mg/L	1	16/2/2021	6
N/A	SW17	Conductivity	$\mu\text{S/cm}$	0	16/2/2021	No Flow
		pH	pH	0	16/2/2021	No Flow
		Total Suspended Solids	mg/L	0	16/2/2021	No Flow
N/A	SW18	Conductivity	$\mu\text{S/cm}$	1	16/2/2021	348
		pH	pH	1	16/2/2021	6.3
		Total Suspended Solids	mg/L	1	16/2/2021	12

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Blasting

EPL ID	Location	Pollutant	Unit of Measure	Frequency	No. of Blasts during the reporting period	Results ¹			Limits dBL	Exceedance (Yes/No)
						Min Value	Mean Value	Max Value		
49	BM1 Ulan School	Blast Overpressure	dBL	Every Blast	12	81.8	93.5	103.8	115 (95% of Blasts) 120 (100% of Blasts)	No
		Ground Vibration	mm/s	Every Blast		0.04	0.13	0.32	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)	No
N/A	BM5 Ridge Rd	Blast Overpressure	dBL	Every Blast	12	83.9	95.5	100.1	115 (95% of Blasts) 120 (100% of Blasts)	No
		Ground Vibration	mm/s	Every Blast		0.07	0.22	0.73	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)	No
N/A	BM8 Moolarben Rd	Blast Overpressure	dBL	Every Blast	12	74.7	95.6	106.3	115 (95% of Blasts) 120 (100% of Blasts)	No
		Ground Vibration	mm/s	Every Blast		0.05	0.11	0.25	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)	No

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Noise

EPL ID	Location	Site ID	Monitoring Type	Frequency	Measured Level ^{1,2,3,6} LA1,1minuted B (15min)	Measured Level ^{1,2,3,6} LAeqdB (1min)	Noise Criteria ⁴	Monitoring Completed during the period	Exceedance (Yes/No) ⁵
44	Ulan Public School	NA1	Compliance - Attended	Monthly	<20	<20	Daytime (07:00 – 18:00) LAeq,15minute: 35 dB	Yes	No
N/A	Cope Road (Receiver 258)	NA11	Management - Attended	Quarterly	<20	<20	-	Yes	No
N/A	Lagoons Road	NA2	Validation - Attended	Annually	-	-	-	No	-
42	Winchester Crescent	NA12	Compliance/Validation - Attended	Monthly	<20	<20	Night time (22:00 – 07:00) LAeq,15minute: 35 dB LA1,1minute: 45 dB	Yes	No
N/A	Upper Ridge Road (Receiver 176)	NA3	Validation - Attended	Annually	-	-	-	No	-
40, 41	Lower Ridge Road	NA6	Compliance -Attended	Monthly	<20	<20	Night time (22:00 – 07:00) LAeq,15minute: 37 dB LA1,1minute: 45 dB	Yes	No
N/A	Moolarben Road (Receiver 28)	NA10	Validation - Attended	Annually	-	-	-	No	-
46	Goulburn River National Park	GRNP	Compliance -Attended	Annually	-	-	All periods LAeq,15minute: 50 dB	No	-
46	Munghorn Gap Nature Reserve	MGNR	Compliance -Attended	Annually	-	-	All periods LAeq,15minute: 50 dB	No	-

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:
 - Wind speeds greater than 3 m/s at 10 metres above ground level; or

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- 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
 6. NM in Not Measurable. When site noise is noted as NM, this means some noise was audible but could not be quantified.

Effluent Discharge Points

EPL ID	Pollutant	Unit of Measure	No. of samples required by Licence	No. of Samples collected and analysed	Date Sampled	Result
5	BOD	mg/L	Quarterly	1	3/2/2021	2
	Nitrogen (total)	mg/L	Quarterly	1	3/2/2021	25.2
	Oil and Grease	mg/L	Quarterly	1	3/2/2021	<5
	pH	pH	Quarterly	1	3/2/2021	7.6
	Phosphorus (total)	mg/L	Quarterly	1	3/2/2021	3.33
	Total Suspended Solids	mg/L	Quarterly	1	3/2/2021	22
22	BOD	mg/L	Quarterly	1	3/2/2021	28
	Nitrogen (total)	mg/L	Quarterly	1	3/2/2021	152
	Oil and Grease	mg/L	Quarterly	1	3/2/2021	<5
	pH	pH	Quarterly	1	3/2/2021	7.3
	Phosphorus (total)	mg/L	Quarterly	1	3/2/2021	21.1
	Total Suspended Solids	mg/L	Quarterly	1	3/2/2021	17
23	BOD	mg/L	Quarterly	1	3/2/2021	2
	Nitrogen (total)	mg/L	Quarterly	1	3/2/2021	7.2
	Oil and Grease	mg/L	Quarterly	1	3/2/2021	<5
	pH	pH	Quarterly	1	3/2/2021	7.5
	Phosphorus (total)	mg/L	Quarterly	1	3/2/2021	0.30
	Total Suspended Solids	mg/L	Quarterly	1	3/2/2021	37
48	BOD	mg/L	Quarterly	1	3/2/2021	14
	Nitrogen (total)	mg/L	Quarterly	1	3/2/2021	7.6
	Oil and Grease	mg/L	Quarterly	1	3/2/2021	<5
	pH	pH	Quarterly	1	3/2/2021	7.2
	Phosphorus (total)	mg/L	Quarterly	1	3/2/2021	6.96
	Total Suspended Solids	mg/L	Quarterly	1	3/2/2021	24

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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	Exceedance (Yes/No)
1	Conductivity	µS/cm	Continuous during discharge	Continuous during discharge	189	204	216	685	No
	Oil and Grease	mg/L	Weekly during discharge	4	<2	<2	<2	10	No
	pH	pH	Continuous during discharge	Continuous during discharge	6.9	7.0	7.1	6.5-8.5	No
	Total Suspended Solids	mg/L	Weekly during discharge	4	<1	<1	1	50	No
	Turbidity	NTU	Continuous during discharge	Continuous during discharge	0	0	0.5	25	No
	Discharge Volume	Megalitres per day	Continuous during discharge	Continuous during discharge	1.5	8.0	9.9	10	No
2	Conductivity	µS/cm	Continuous during discharge	No licensed discharges during the period				685	NA
	Oil and Grease	mg/L	Daily during discharge					10	NA
	pH	pH	Continuous during discharge					6.5-8.5	NA
	Total Suspended Solids	mg/L	Daily during discharge					50	NA
	Turbidity	NTU	Continuous during discharge					25	NA
	Discharge Volume	Megalitres per day	Continuous during discharge						NA
24	Oil and Grease	mg/L	Daily during discharge	No licensed discharges during the period					NA
	pH	pH	Daily during discharge					6.5-8.5	NA
	Total Suspended Solids	mg/L	Daily during discharge					50	NA
	Turbidity	NTU	Daily during discharge					25	NA
26	Oil and Grease	mg/L	Daily during discharge	No licensed discharges during the period					NA
	pH	pH	Daily during discharge					6.5-8.5	NA
	Total Suspended Solids	mg/L	Daily during discharge					50	NA
	Turbidity	NTU	Daily during discharge					25	NA

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28	Conductivity	µS/cm	Continuous during discharge	No licensed discharges during the period				685	NA
	Oil and Grease	mg/L	Daily during discharge					10	NA
	pH	pH	Continuous during discharge					6.5-8.5	NA
	Total Suspended Solids	mg/L	Daily during discharge					50	NA
	Turbidity	NTU	Continuous during discharge					25	NA
	Discharge Volume	Kilolitres per day	Continuous during discharge						NA
29	Oil and Grease	mg/L	Daily during discharge	No licensed discharges during the period					NA
	pH	pH	Daily during discharge					6.5-8.5	NA
	Total Suspended Solids	mg/L	Daily during discharge					50	NA
	Turbidity	NTU	Daily during discharge					25	NA
31	Oil and Grease	mg/L	Daily during discharge	No licensed discharges during the period					NA
	pH	pH	Daily during discharge					6.5-8.5	NA
	Total Suspended Solids	mg/L	Daily during discharge					50	NA
	Turbidity	NTU	Daily during discharge					25	NA
35	Oil and Grease	mg/L	Daily during discharge	No licensed discharges during the period					NA
	pH	pH	Daily during discharge					6.5-8.5	NA
	Total Suspended Solids	mg/L	Daily during discharge					50	NA
	Turbidity	NTU	Daily during discharge					25	NA
51	Oil and Grease	mg/L	Daily during discharge	No licensed discharges during the period					NA
	pH	pH	Daily during discharge					6.5-8.5	NA
	Total Suspended Solids	mg/L	Daily during discharge					50	NA
	Turbidity	NTU	Daily during discharge					25	NA