

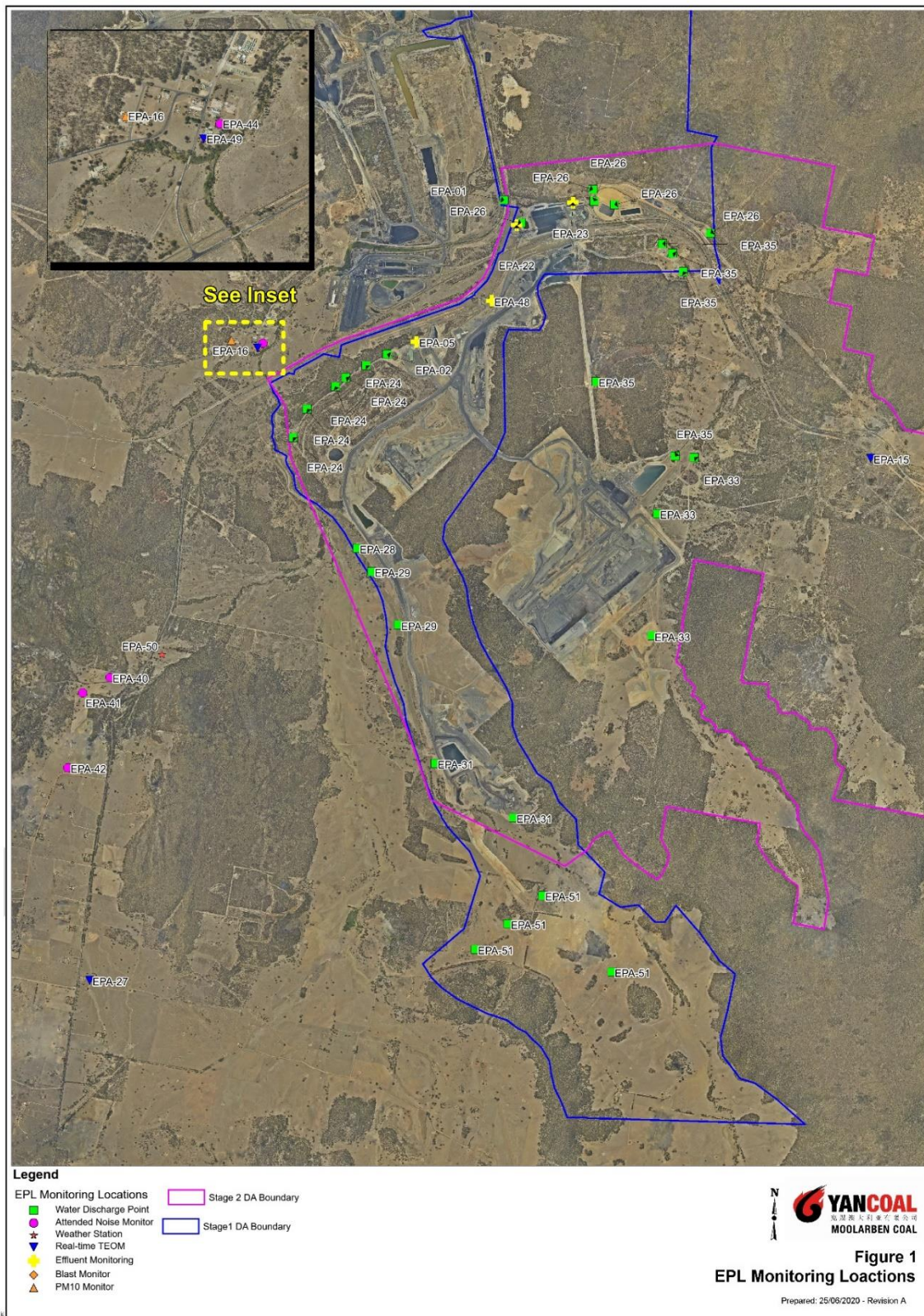


Monthly Environmental Monitoring Report

For the Month Ending 31 August 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 August 2020 to 31 August 2020
Date last sampled data obtained	15 September 2020
Publication Date	23 September 2020
Revised Publication Date	4 March 2021
Version	2
Author	L. Martin
Approver	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	Exceedance (Yes/No)
						Min Value	Mean Value	Max Value		
15	TEOM 6	PM10	µg/m ³	97.9%	Continuous	19.0	19.6	20.2	25	No
16	PM01	PM10	µg/m ³	5	Every 6 days	13.3	13.7	14.2	25	No
N/A	PM02	PM10	µg/m ³	5	Every 6 days	12.5	13.0	13.5	25	No
17	TEOM 1	PM10	µg/m ³	98.8%	Continuous	17.0	17.2	17.5	25	No
27	TEOM 7	PM10	µg/m ³	97.1%	Continuous	12.6	13.0	13.4	25	No
27	TEOM 7	PM2.5	µg/m ³	97.1%	Continuous	5.4	5.6	5.7	8	No
N/A	TEOM 4	PM10	µg/m ³	97.1%	Continuous	16.3	16.8	17.3	25	No

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	Exceedance (Yes/No)
15	TEOM 6	PM10	µg/m ³	Continuous (24 Hr Average)	97.9%	2.1	12.9	37.9 (64.4*)	50	No
16	PM01	PM10	µg/m ³	Every 6 days	5	1.0	7.4	14.0	50	No
N/A	PM02	PM10	µg/m ³	N/A	5	<1	11.7	20.0	50	No
17	TEOM 1	PM10	µg/m ³	Continuous (24 Hr Average)	98.8%	1.7	10.0	20.6 (61.0*)	50	No
27	TEOM 7	PM10	µg/m ³	Continuous (24 Hr Average)	97.1%	1.1	7.6	17.1(47.8*)	50	No
27	TEOM 7	PM2.5	µg/m ³	Continuous (24 Hr Average)	97.1%	0.5	3.2	9.9	25	No
N/A	TEOM 4	PM10	µg/m ³	N/A (24 Hr Average)	97.1%	1.2	7.9	19.6 (56.3*)	50	No

*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	Results
N/A	SW01	Conductivity	µS/cm	1	11/08/2020	406
		pH	pH	1	11/08/2020	7.54
		Total Suspended Solids	mg/L	1	11/08/2020	<5
N/A	SW02	Conductivity	µS/cm	1	11/08/2020	413
		pH	pH	1	11/08/2020	7.43
		Total Suspended Solids	mg/L	1	11/08/2020	<5
N/A	SW04	Conductivity	µS/cm	1	11/08/2020	378
		pH	pH	1	11/08/2020	6.74
		Total Suspended Solids	mg/L	1	11/08/2020	14
N/A	SW05	Conductivity	µS/cm	1	11/08/2020	886
		pH	pH	1	11/08/2020	7.14
		Total Suspended Solids	mg/L	1	11/08/2020	<5
N/A	SW07	Conductivity	µS/cm	1	11/08/2020	1680
		pH	pH	1	11/08/2020	7.64
		Total Suspended Solids	mg/L	1	11/08/2020	<5
N/A	SW08	Conductivity	µS/cm	1	11/08/2020	3490
		pH	pH	1	11/08/2020	6.05
		Total Suspended Solids	mg/L	1	11/08/2020	10
N/A	SW09	Conductivity	µS/cm	1	11/08/2020	4420
		pH	pH	1	11/08/2020	6.76
		Total Suspended Solids	mg/L	1	11/08/2020	5
N/A	SW12	Conductivity	µS/cm	1	11/08/2020	429
		pH	pH	1	11/08/2020	6.88
		Total Suspended Solids	mg/L	1	11/08/2020	<5
N/A	SW15	Conductivity	µS/cm	1	11/08/2020	154
		pH	pH	1	11/08/2020	6.95
		Total Suspended Solids	mg/L	1	11/08/2020	<5
N/A	SW16	Conductivity	µS/cm	1	11/08/2020	161
		pH	pH	1	11/08/2020	6.71

MONTHLY ENVIRONMENTAL MONITORING REPORTFor the Month Ending 31 August 2020

EPL ID	Location	Pollutant	Unit of Measure	No. of Samples collected and analysed	Date Sampled	Results
		Total Suspended Solids	mg/L	1	11/08/2020	<5
N/A	SW17	Conductivity	µS/cm	1	11/08/2020	565
		pH	pH	1	11/08/2020	5.67
		Total Suspended Solids	mg/L	1	11/08/2020	59
N/A	SW18	Conductivity	µS/cm	1	11/08/2020	186
		pH	pH	1	11/08/2020	6.65
		Total Suspended Solids	mg/L	1	11/08/2020	<5

MONTHLY ENVIRONMENTAL MONITORING REPORTFor the Month Ending 31 August 2020

Blasting

EPL ID	Location	Pollutant	Unit of Measure	Frequency	No. of Blasts during the reporting period	Min Value	Mean Value	Max Value	Limits dBL	Exceedance (Yes/No)
49	BM1 Ulan School	Blast Overpressure	dBL	Every Blast	17	87.2	96.3	109.9	115 (95% of Blasts) 120 (100% of Blasts)	No
		Ground Vibration	mm/s	Every Blast		0.04	0.14	0.28	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)	No
N/A	BM5 Ridge Rd	Blast Overpressure	dBL	Every Blast	17	85.1	98.6	105.6	115 (95% of Blasts) 120 (100% of Blasts)	No
		Ground Vibration	mm/s	Every Blast		0.08	0.16	0.29	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)	No
N/A	BM8 Moolarben Rd	Blast Overpressure	dBL	Every Blast	17	75.7	94.7	110.2	115 (95% of Blasts) 120 (100% of Blasts)	No
		Ground Vibration	mm/s	Every Blast		0.05	0.08	0.14	5mm/s (95% of Blasts) 10mm/s (100% of Blasts)	No

MONTHLY ENVIRONMENTAL MONITORING REPORT

For the Month Ending 31 August 2020

Noise

EPL ID	Location	Site ID	Monitoring Type	Frequency	Measured Level _{1,2,3} LA _{1,1minute} dB (15min)	Measured Level _{1,2,3} LAeqdB (1min)	Noise Criteria ₄	Monitoring Completed during the period	Exceedance (Yes/No) ⁵
44	Ulan Public School	NA1	Compliance - Attended	Monthly	NA	IA	Daytime (07:00 – 18:00) LAeq,15minute: 35 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	<20	<20	Night time (22:00 – 07:00) LAeq,15minute: 35 dB LA _{1,1minute} : 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	27	Night time (22:00 – 07:00) LAeq,15minute: 37 dB LA _{1,1minute} : 45 dB	Yes	NA
N/A	Moolarben Road (Receiver 28)	NA10	Validation - Attended	Annually	-	-	-	No	-
46	Goulburn River National Park	GRNP	Compliance -Attended	Quarterly	41	38	All periods LAeq,15minute: 50 dB	Yes	No
46	Munghorn Gap Nature Reserve	MGNR	Compliance -Attended	Quarterly	<25	<25	All periods LAeq,15minute: 50 dB	Yes	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:
 - Wind speeds greater than 3 m/s at 10 metres above ground level; or

MONTHLY ENVIRONMENTAL MONITORING REPORT

For the Month Ending 31 August 2020

- 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	Result
5	BOD	mg/L	Quarterly	1	06/08/2020	6
	Nitrogen (total)	mg/L	Quarterly	1	06/08/2020	10.3
	Oil and Grease	mg/L	Quarterly	1	06/08/2020	5
	pH	pH	Quarterly	1	06/08/2020	7.0
	Phosphorus (total)	mg/L	Quarterly	1	06/08/2020	1.05
	Total Suspended Solids	mg/L	Quarterly	1	06/08/2020	27
22	BOD	mg/L	Quarterly	1	06/08/2020	8
	Nitrogen (total)	mg/L	Quarterly	1	06/08/2020	41.6
	Oil and Grease	mg/L	Quarterly	1	06/08/2020	<5
	pH	pH	Quarterly	1	06/08/2020	7.2
	Phosphorus (total)	mg/L	Quarterly	1	06/08/2020	23.6
	Total Suspended Solids	mg/L	Quarterly	1	06/08/2020	11
23	BOD	mg/L	Quarterly	1	06/08/2020	12
	Nitrogen (total)	mg/L	Quarterly	1	06/08/2020	6.7
	Oil and Grease	mg/L	Quarterly	1	06/08/2020	9
	pH	pH	Quarterly	1	06/08/2020	7.0
	Phosphorus (total)	mg/L	Quarterly	1	06/08/2020	0.27
	Total Suspended Solids	mg/L	Quarterly	1	06/08/2020	19
48	BOD	mg/L	Quarterly	1	12/08/2020	40
	Nitrogen (total)	mg/L	Quarterly	1	12/08/2020	6.3
	Oil and Grease	mg/L	Quarterly	1	12/08/2020	9
	pH	pH	Quarterly	1	12/08/2020	6.5
	Phosphorus (total)	mg/L	Quarterly	1	12/08/2020	0.41
	Total Suspended Solids	mg/L	Quarterly	1	12/08/2020	79

MONTHLY ENVIRONMENTAL MONITORING REPORT

For the Month Ending 31 August 2020

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	244	253.7	265.8	685	No
	Oil and Grease	mg/L	Weekly during discharge	5	<1	<4	<5	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	5	<1	<1	<1	50	No
	Turbidity	NTU	Continuous during discharge	Continuous during discharge	0	0	0.8	25	No
	Discharge Volume	Megalitres per day	Continuous during discharge	Continuous during discharge	3.2	8.2	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

MONTHLY ENVIRONMENTAL MONITORING REPORT

For the Month Ending 31 August 2020

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)
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