



Mannering Colliery Monthly Website Report – November 2024

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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of November 2024.

Introduction

Great Southern Energy Pty Ltd (trading as Delta Coal) operates Manning Colliery, an underground coal mine at the southern end of Lake Macquarie.

Manning Colliery operates under the following regulatory instruments:

- Section 66(6) of the *Protection of the Environmental Operations Act 1997*, to make monitoring data related to an Environment Protection Licence (EPL) publicly available;
- Condition 10 & 13, Schedule 5, of Project Approval 06_0311 (as modified) to provide details of monitoring results and environmental performance;
- An Environment Protection Licence (EPL 191) issued under the *Protection of the Environment Operations Act 1997*; and
- A Water Access Licence (WAL40461), Aquifer (Sydney Basin – North Coast Groundwater Source) for 450-unit shares (megalitres).

Details of the Manning Colliery EPL 191 are provided below.

Manning Colliery Information	
Premises name	Manning Colliery
Address	Ruttleys Road, Doyalson, NSW, 2262
Licensee	Great Southern Energy Pty Ltd
EPL #	191
EPL location	EPL 0191 - 16 June 2023

The overall purpose of this monthly report is to keep stakeholders informed of the environmental monitoring results at Manning Colliery and maintain a transparent and accountable reporting system.

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Scope

This report presents the results from the various environmental monitoring programs undertaken for Manning Colliery. Results are presented monthly with annual data, averages and trends in data also shown where relevant.

Where applicable, the results of the monitoring programs are compared with the relevant criteria (from the EPL or Project Approval) to assess compliance.

Monitoring results presented include:

- Water – quality;
- Water – volume;
- Air Quality – Depositional Dust
- Air Quality – PM₁₀
- Air Quality – PM_{2.5}; and
- Meteorological data.

Definitions

g/m²/month – grams per square metre per month;

kL – kilolitre;

ML – megalitre;

mg/L – milligrams per litre;

TSS – total suspended solids;

µg/L – micrograms per litre; and

µS/cm – microSiemens per centimetre.

References

Project Approval MP06_0311 (as modified)

Environment Protection Licence 191 (Licence version date: 16 June 2023)

ALS - Dust Deposition Report **November 2024**

ALS – MC Water Analysis Reports **November 2024**

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Monitoring Results

Water – Quality

Weekly water quality results for discharge point LDP001 are presented below.

November 2024				
EPL	191			
Licensee	Great Southern Energy Pty Ltd			
Premises	Manning Colliery			
Location	LDP001 (EPA ID # 1)			
Sample Frequency	Weekly			
pH limit	6.5 - 8.5			
TSS limit (mg/L)	50			
Oil and grease limit (mg/L)	10			
Water Quality Results				
Date	pH	TSS (mg/L)	Oil and grease (mg/L)	Electrical Conductivity (µS/cm)
5/11/2024	7.83	13	<5	26500
11/11/2024	7.66	10	<5	28500
21/11/2024	7.76	11	<5	24400
27/11/2024	8.01	9	<5	24800
Average	7.82	10.75	<5	26050

There were no exceedances of water quality criteria in November 2024 at Manning Colliery.

Monthly water quality results, primarily metals and metalloids, at LDP001 are presented below.

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Sub-Matrix: WATER (Matrix: WATER)		Sample ID		LDP001
Sampling date / time				21-Nov-2024 11:00
Compound	CAS Number	LOR	Unit	EN2415291-001 Result
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	137
Silicon as SiO2	14464-46-1	0.1	mg/L	11.6
ED093T: Total Major Cations				
Calcium	7440-70-2	1	mg/L	258
Magnesium	7439-95-4	1	mg/L	264
Potassium	7440-09-7	1	mg/L	35
EG020F: Dissolved Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	<10
Arsenic	7440-38-2	1	µg/L	3
Beryllium	7440-41-7	1	µg/L	<1
Cadmium	7440-43-9	0.1	µg/L	<0.1
Chromium	7440-47-3	1	µg/L	<1
Cobalt	7440-48-4	1	µg/L	<1
Copper	7440-50-8	1	µg/L	<1
Lead	7439-92-1	1	µg/L	<1
Manganese	7439-96-5	1	µg/L	33
Molybdenum	7439-98-7	1	µg/L	6
Nickel	7440-02-0	1	µg/L	3
Selenium	7782-49-2	10	µg/L	<10
Silver	7440-22-4	1	µg/L	<1
Vanadium	7440-62-2	10	µg/L	<10
Zinc	7440-66-6	5	µg/L	19
EG020T: Total Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	20
Antimony	7440-36-0	1	µg/L	2
Arsenic	7440-38-2	1	µg/L	3
Beryllium	7440-41-7	1	µg/L	<1
EG020T: Total Metals by ICP-MS - Continued				
Barium	7440-39-3	1	µg/L	247
Cadmium	7440-43-9	0.1	µg/L	<0.1
Chromium	7440-47-3	1	µg/L	<1
Cobalt	7440-48-4	1	µg/L	<1
Copper	7440-50-8	1	µg/L	<1
Lead	7439-92-1	1	µg/L	<1
Lithium	7439-93-2	1	µg/L	571
Molybdenum	7439-98-7	1	µg/L	12
Nickel	7440-02-0	1	µg/L	3
Selenium	7782-49-2	10	µg/L	<10
Silver	7440-22-4	1	µg/L	<1
Tin	7440-31-5	1	µg/L	2
Titanium	7440-32-6	10	µg/L	<10
Vanadium	7440-62-2	10	µg/L	<10
Zinc	7440-66-6	5	µg/L	22
Boron	7440-42-8	50	µg/L	410
Iron	7439-89-6	50	µg/L	<50
EG035F: Dissolved Mercury by FIMS				
Mercury	7439-97-6	0.1	µg/L	<0.1
EG035T: Total Recoverable Mercury by FIMS				
Mercury	7439-97-6	0.1	µg/L	<0.1
EK055G: Ammonia as N by Discrete Analyser				
Ammonia as N	7664-41-7	0.01	mg/L	0.14
EK067G: Total Phosphorus as P by Discrete Analyser				
Total Phosphorus as P	----	0.01	mg/L	0.04

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Water – Volume

Monthly water volumes discharged via MC's LDP1 during November 2024 at Manning Colliery are summarised below.

EPL	191
Licensee	Great Southern Energy Pty Ltd
Premises	Manning Colliery
Date Sampled	Daily
Discharge volume limit	4000 kilolitres per day
Sampling Point	LDP001 (EPA ID # 1)

Date (24 hour period)	LDP 1 Volume (kL/day)	Rainfall (mm)
01/11/2024	1882.60	19.4
02/11/2024	2487.81	41
03/11/2024	1636.56	0
04/11/2024	1501.46	0
05/11/2024	1482.19	2
06/11/2024	1326.92	0
07/11/2024	905.50	3
08/11/2024	1361.68	6
09/11/2024	528.23	0
10/11/2024	0.00	0.2
11/11/2024	495.55	2.4
12/11/2024	1016.46	7.2
13/11/2024	739.83	12.8
14/11/2024	1811.01	0.2
15/11/2024	1417.67	22.8
16/11/2024	921.21	0
17/11/2024	895.23	8.2
18/11/2024	751.36	4.6
19/11/2024	648.28	0.2
20/11/2024	1066.09	0
21/11/2024	960.66	0
22/11/2024	526.35	0
23/11/2024	47.76	0
24/11/2024	2.95	0
25/11/2024	713.71	0
26/11/2024	863.35	0
27/11/2024	12.43	0
28/11/2024	659.05	3.4
29/11/2024	995.72	8.6
30/11/2024	165.79	7.2

Average	927.45 kL/day	4.97 mm/day
Maximum	2487.81 kL/day	41 mm/day

Volumetric discharge remained below the daily limit of 4,000 kL per day.

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Water – Groundwater Discharge

Groundwater discharged from underground workings to the MCs surface retention Dams has been detailed below. Manning Colliery operates Water Access License 40461 permitting the extraction of 450 megalitres per financial year and reports annual use to the Water NSW, Water Accounting System (iWAS).

MC Groundwater Pumped to Surface Totals FY2024-2025		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative ML YTD)
July 2024	14	14
August 2024	25	39
September 2024	20	59
October 2024	26	85
November 2024	19	104

Air Quality – Depositional Dust

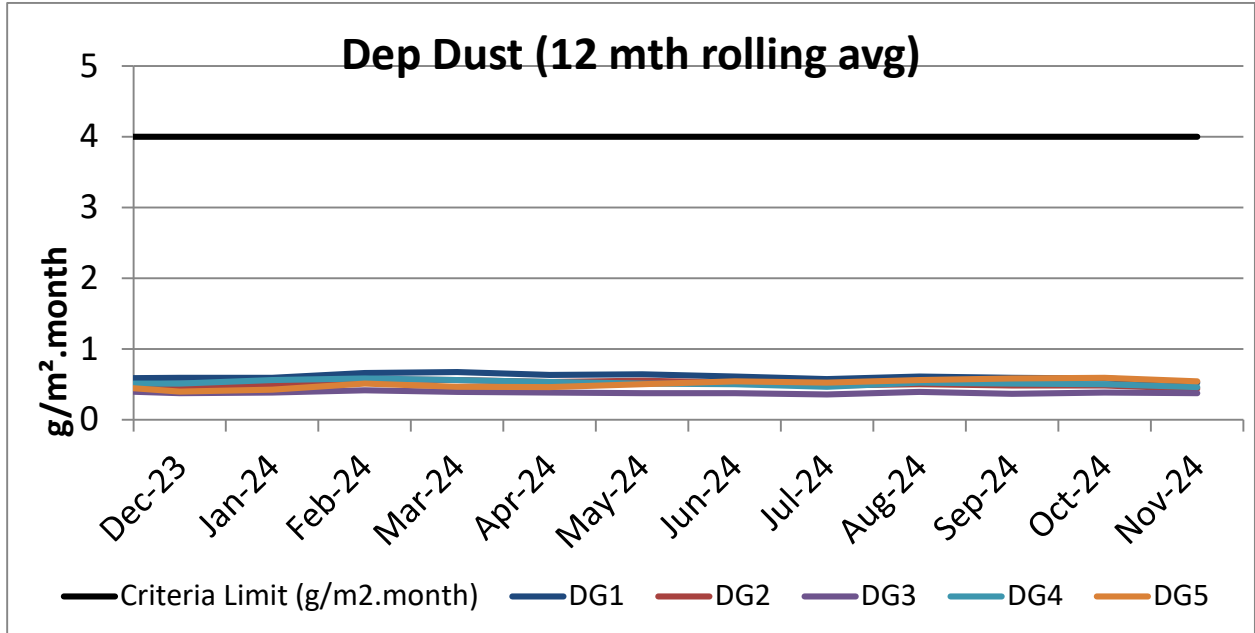
Monthly depositional dust results are shown below.

November 2024		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	02/10/2024 – 01/11/2024	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.2
4	DG2	0.5
5	DG3	0.4
6	DG4	0.5
7	DG5	0.2
Notes:	Sampling locations provided in Delta Coal Air Quality and Greenhouse Gas Management Plan available on the Delta Coal website.	

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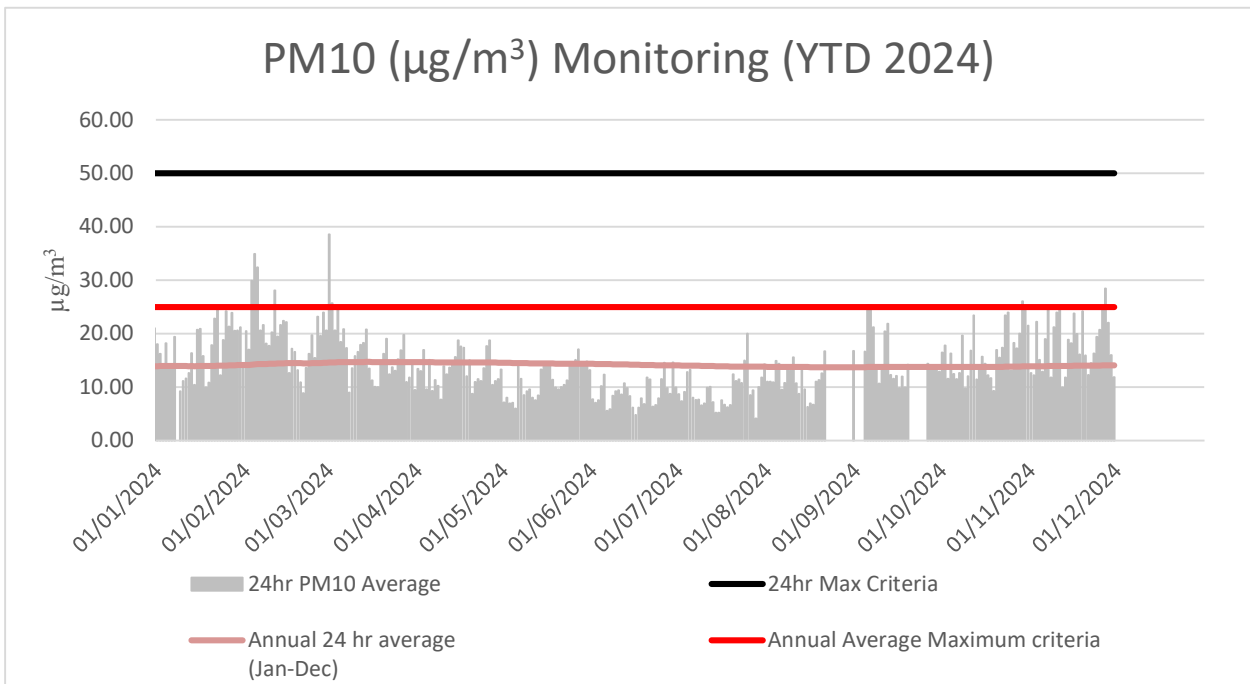
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A 12-month rolling average of depositional dust concentrations has been presented below. Manning Colliery’s dust gauges are located around the perimeter of the Manning Colliery site boundary.



Air Quality – PM₁₀

The 24hr PM₁₀ average from Delta Coal’s Tapered Element Oscillating Microbalance (TEOM), located at the Manning Park Sewage Treatment Plant, is presented below for the previous 12 months.



Annual 24hr PM₁₀ average maximum criteria for November 2024 was below the annual average maximum criteria limit. A summary of data availability for Delta Coal’s TEOM is presented below for the reporting period. Delta Coals TEOM had a data availability of 94.1% for the month of November 2024.

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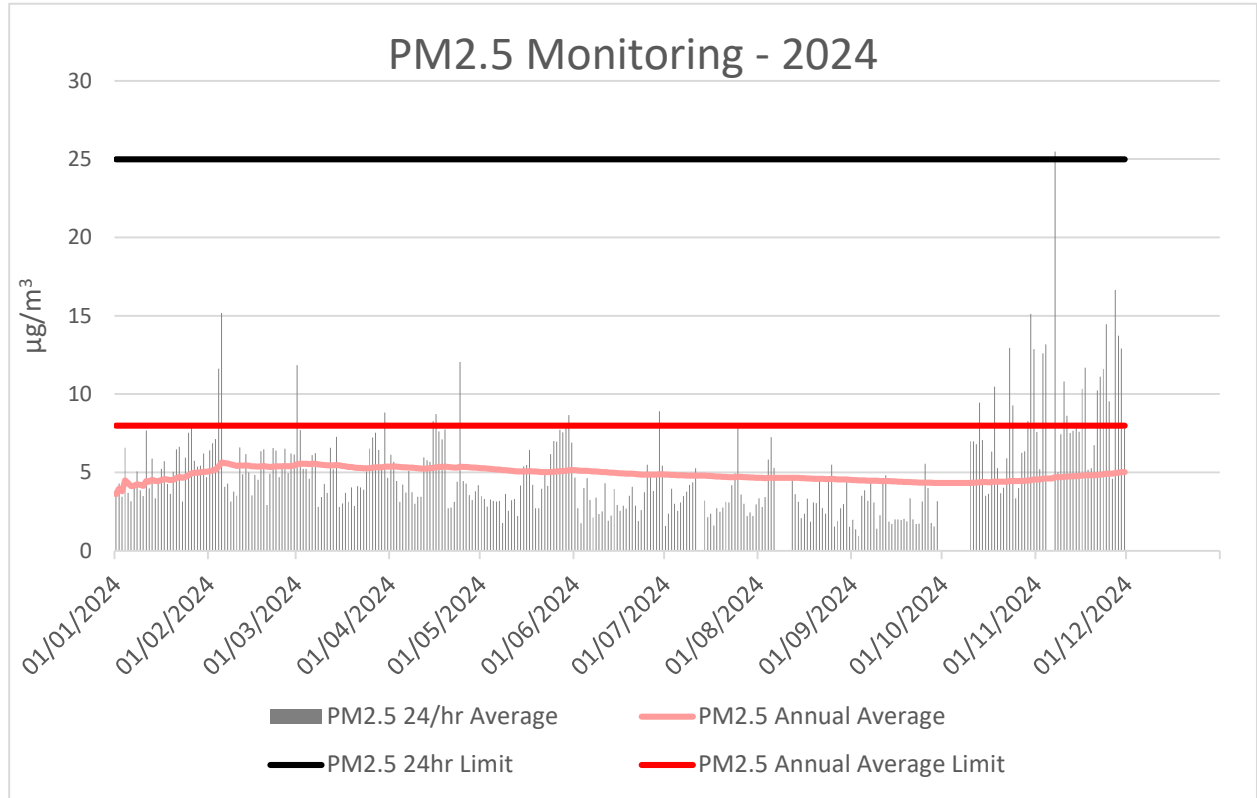
Variable	November	Total	Valid
A/C Temp	99.9%	8640	8635
A1_Scaled	99.9%	8640	8635
Band	99.9%	8640	8635
Bypass Flow	99.9%	8640	8634
Cap Temp	99.9%	8640	8634
Case Temp	99.9%	8640	8634
Config	99.9%	8640	8635
Dew Point	99.9%	8640	8634
Dig-In	99.9%	8640	8635
Dig-Latch	99.9%	8640	8635
ESN	99.9%	8640	8635
Filter Freq	99.9%	8640	8634
Filter Load	99.9%	8640	8634
Humidity	99.9%	8640	8634
MC	99.9%	8640	8634
MC 12Hr	99.9%	8640	8634
MC 1Hr	99.9%	8640	8634
MC 24Hr	99.9%	8640	8634
MC 30min	99.9%	8640	8634
MC 8Hr	99.9%	8640	8634
MC Total	99.9%	8640	8634
Mobile Signal	99.9%	8640	8635
Noise	99.9%	8640	8634
PM10 Flow	99.9%	8640	8634
Pressure	99.9%	8640	8634
Site	0.0%	8640	0
Temperature	99.9%	8640	8634
Tube Temp	99.9%	8640	8634
Vac Pressure	99.9%	8640	8634
Volts	99.9%	8640	8635

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Air Quality – PM2.5

Delta Coal utilises PM_{2.5} data obtained from Delta Electricity owned and operated beta attenuation monitor (BAM). The PM_{2.5} monitor is located on Tingley Road, Wyee.



There were no exceedances of the PM_{2.5} daily average limit in November 2024. The 12-month rolling average PM_{2.5} value on 30 November was 5.02 $\mu\text{g}/\text{m}^3$. PM_{2.5} data availability in November was 83%. The 2024 year to date PM_{2.5} data availability is 91.79%.

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Weather Data

A summary of weather data recorded by a meteorological monitoring station at the adjacent Manning Colliery is presented below for the year to date. (EPA ID no. 26).

Monthly Weather Data 2024			
Licensee	Great Southern Energy Pty Ltd		
Location	Manning Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	13 November 2024		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-24	53.6	13.8	40.9
Feb-24	163	16.4	39
Mar-24	18.6	13.3	33.8
Apr-24	362	13.2	17.9
May-24	263	12.1	16.6
Jun-24	163	3.2	22.1
July-24	88	1.8	22
Aug-24	56.4	4	29.2
Sep-24	85.8	4.4	28.8
Oct-24	75	7.9	30.6
Nov-24	151	13.4	36.9

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Variable	November	Total	Valid
Baro (Corrected)	100%	2880	2880
10m Temp	100%	2880	2880
2m Temp	100%	2880	2880
A1	100%	2880	2880
A1_Scaled	100%	2880	2880
Assumed Temp	100%	2880	2880
Barometric	100%	2880	2880
Config	100%	2880	2880
Daily Evap	100%	2880	2880
Daily Rain	100%	2880	2880
Delta T	100%	2880	2880
Dew Point	100%	2880	2880
Dig-In	100%	2880	2880
Dig-Latch	100%	2880	2880
ESN	100%	2880	2880
FDI	100%	2880	2880
Heat Index	100%	2880	2880
Humidity	100%	2880	2880
Mobile Signal	100%	2880	2880
Rain	100%	2880	2880
Raw Evap	100%	2880	2880
S Class	100%	2880	2880
Scalar WS	100%	2880	2880
Sigma	100%	2880	2880
Site	0.0%	2880	0
Solar Radiation	100%	2880	2880
Vector WD	100%	2880	2880
Vector WS	100%	2880	2880
Volts	100%	2880	2880
Wind Chill	100%	2880	2880
Wind Direction	100%	2880	2880
Wind Speed	100%	2880	2880
WS Avg	100%	2880	2880
WS Gust	100%	2880	2880