



Mannering Colliery Monthly Website Report – December 2024

Site:	Mannering Colliery
Department:	Health Safety and Environment
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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of December 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 **December 2024**

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

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Monitoring Results

Water – Quality

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

December 2024				
EPL	191			
Licensee	Great Southern Energy Pty Ltd			
Premises	Manningering 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)
3/12/2024	8.03	15	<5	23600
11/12/2024	7.69	11	<5	28000
17/12/2024	7.75	31	<5	28300
24/12/2024	7.91	14	<5	26400
31/12/2024	8.27	17	<5	15600
Average	7.93	17.6	<5	24380

There were no exceedances of water quality criteria in December 2024 at Manningering 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				11-Dec-2024 08:15	
Compound	CAS Number	LOR	Unit	EN2416466-001	
					Result
ED040F: Dissolved Major Anions					
Sulfur as S	63705-05-5	1	mg/L	158	
Silicon as SiO2	14464-46-1	0.1	mg/L	12.5	
ED093T: Total Major Cations					
Calcium	7440-70-2	1	mg/L	260	
Magnesium	7439-95-4	1	mg/L	305	
Potassium	7440-09-7	1	mg/L	41	
EG020F: Dissolved Metals by ICP-MS					
Aluminium	7429-90-5	10	µg/L	<10	
Arsenic	7440-38-2	1	µg/L	<1	
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	57	
Molybdenum	7439-98-7	1	µg/L	10	
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	63	
EG020T: Total Metals by ICP-MS					
Aluminium	7429-90-5	10	µg/L	<10	
Antimony	7440-36-0	1	µg/L	<1	
Arsenic	7440-38-2	1	µg/L	2	
Beryllium	7440-41-7	1	µg/L	<1	
EG020T: Total Metals by ICP-MS - Continued					
Barium	7440-39-3	1	µg/L	252	
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	15	
Lead	7439-92-1	1	µg/L	<1	
Lithium	7439-93-2	1	µg/L	584	
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	<1	
Titanium	7440-32-6	10	µg/L	<10	
Vanadium	7440-62-2	10	µg/L	<10	
Zinc	7440-66-6	5	µg/L	90	
Boron	7440-42-8	50	µg/L	390	
Iron	7439-89-6	50	µg/L	180	
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	0.57	
EK067G: Total Phosphorus as P by Discrete Analyser					
Total Phosphorus as P	---	0.01	mg/L	<0.01	

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Water – Volume

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

EPL	191
Licensee	Great Southern Energy Pty Ltd
Premises	Mannering 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)
01/12/2024	8.52	3.4
02/12/2024	25.81	8.6
03/12/2024	205.16	7.2
04/12/2024	32.36	0.4
05/12/2024	21.59	0.2
06/12/2024	505.83	0
07/12/2024	2007.08	0
08/12/2024	1372.25	0.4
09/12/2024	1210.83	0
10/12/2024	1129.96	27.6
11/12/2024	1136.27	2.2
12/12/2024	775.85	0
13/12/2024	1058.91	0
14/12/2024	1041.29	0
15/12/2024	1041.01	0
16/12/2024	725.69	0
17/12/2024	875.87	0
18/12/2024	1064.92	0
19/12/2024	428.47	0
20/12/2024	781.91	2
21/12/2024	980.75	5.2
22/12/2024	566.84	0
23/12/2024	714.98	0
24/12/2024	1067.56	0
25/12/2024	1056.30	0
26/12/2024	1072.82	0
27/12/2024	1073.36	0
28/12/2024	256.37	0
29/12/2024	7.69	0
30/12/2024	173.19	1.4

Average	762.61 kL/day	1.3 mm/day
Maximum	2007.08 kL/day	27.6 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
December 2024	18	122

Air Quality – Depositional Dust

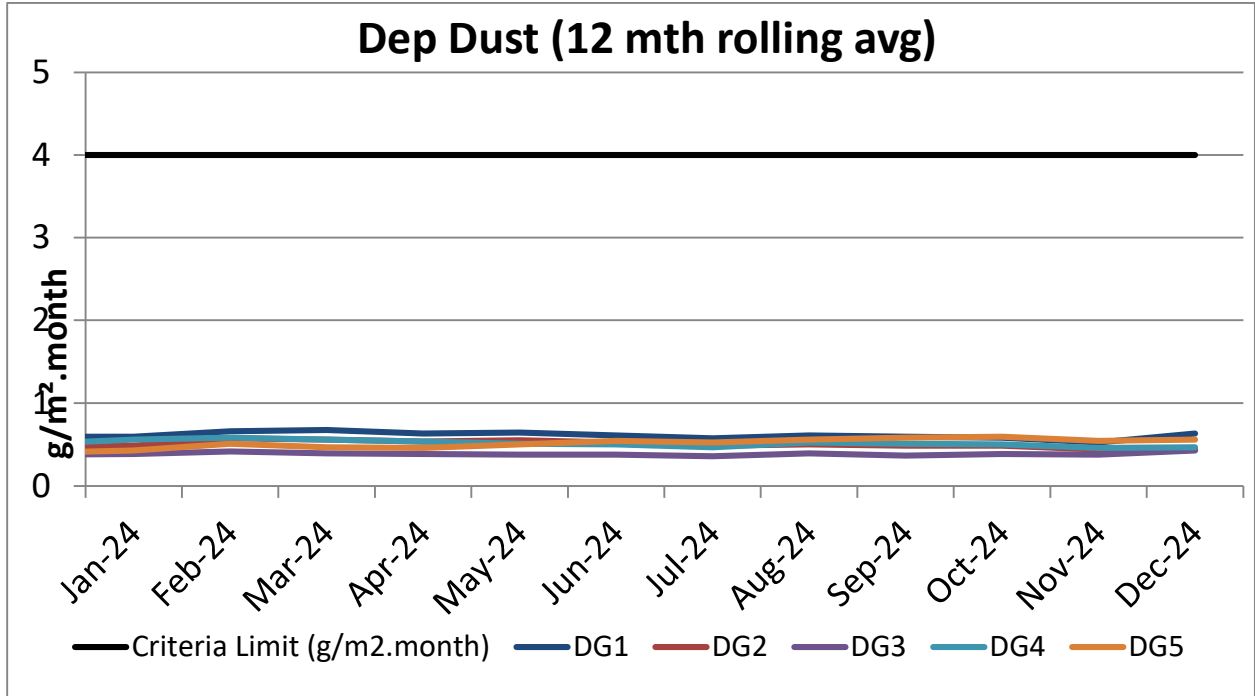
Monthly depositional dust results are shown below.

December 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	01/11/2024 – 02/12/2024	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	2
4	DG2	0.5
5	DG3	0.8
6	DG4	0.6
7	DG5	0.7
Notes:	Sampling locations provided in Delta Coal Air Quality and Greenhouse Gas Management Plan available on the Delta Coal website.	

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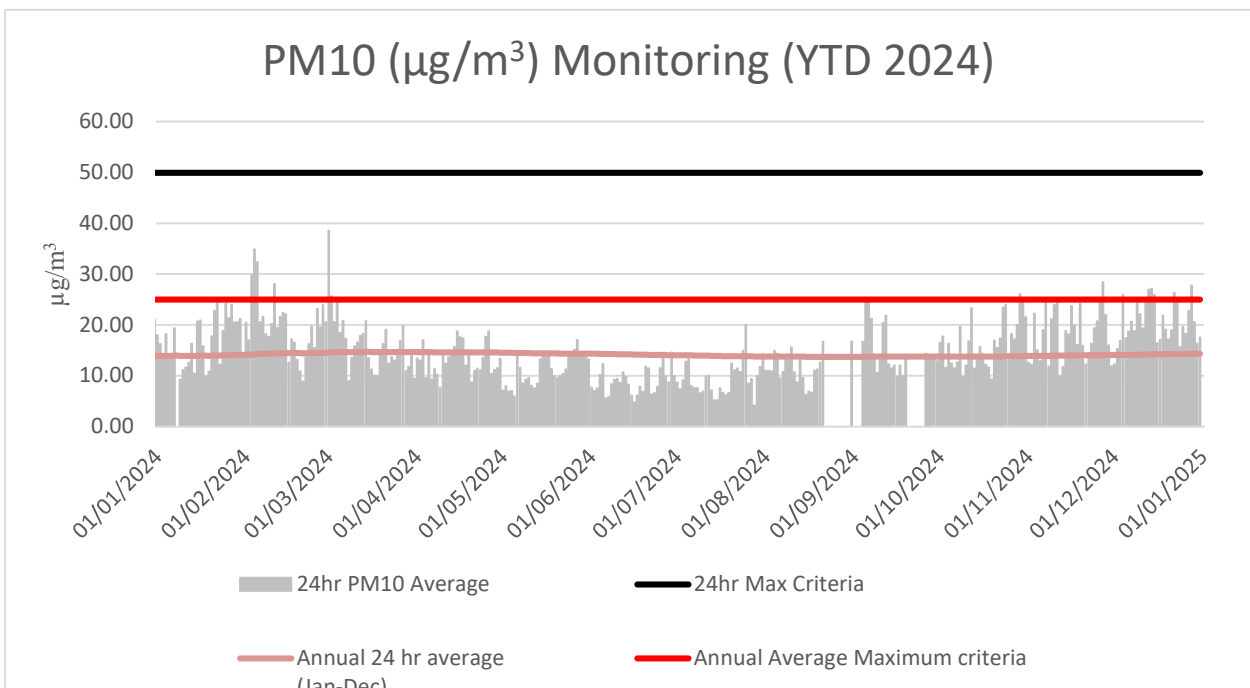
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A 12-month rolling average of depositional dust concentrations has been presented below. Manning Colliery's dust gauges are located around the perimeter of the Manning Colliery site boundary.



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.



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Annual 24hr PM₁₀ average maximum criteria for December 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 94.6% for the month of December 2024.

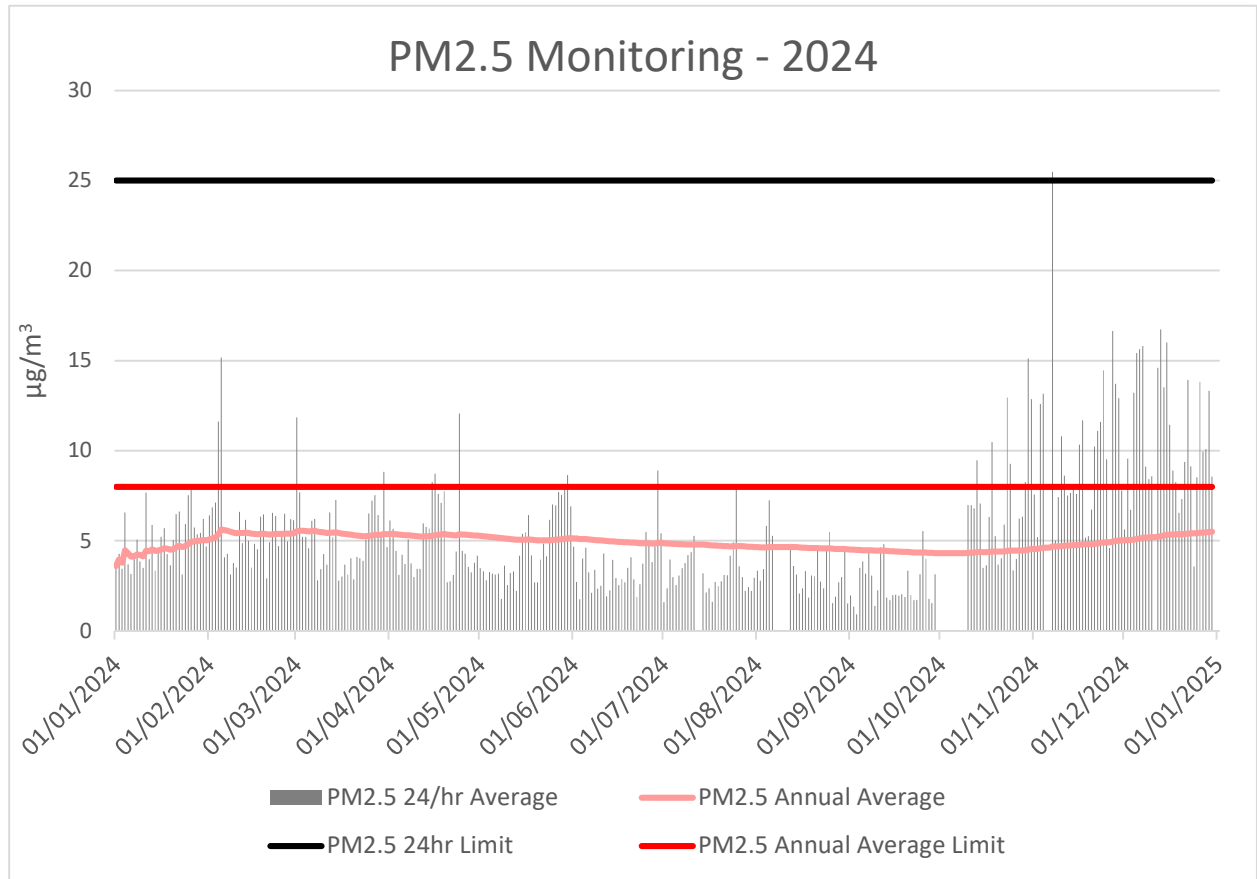
Variable	December	Total	Valid
A/C Temp	100%	8928	8928
A1_Scaled	100%	8928	8928
Band	100%	8928	8928
Bypass Flow	100%	8928	8928
Cap Temp	100%	8928	8928
Case Temp	100%	8928	8928
Config	100%	8928	8928
Dew Point	100%	8928	8928
Dig-In	100%	8928	8928
Dig-Latch	100%	8928	8928
ESN	100%	8928	8928
Filter Freq	100%	8928	8928
Filter Load	100%	8928	8928
Humidity	100%	8928	8928
MC	100%	8928	8928
MC 12Hr	100%	8928	8928
MC 1Hr	100%	8928	8928
MC 24Hr	100%	8928	8928
MC 30min	100%	8928	8928
MC 8Hr	100%	8928	8928
MC Total	100%	8928	8928
Mobile Signal	100%	8928	8928
Noise	100%	8928	8928
PM10 Flow	100%	8928	8928
Pressure	100%	8928	8928
Site	0.0%	8928	0
Temperature	100%	8928	8928
Tube Temp	100%	8928	8928
Vac Pressure	100%	8928	8928
Volts	100%	8928	8928

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Air Quality – PM_{2.5}

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 December 2024. The 12-month rolling average PM_{2.5} value on 31 December was 5.52 $\mu\text{g}/\text{m}^3$. PM_{2.5} data availability in December was 93%. The 2024 year to date PM_{2.5} data availability is 91.92%.

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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
Dec-24	39.4	12.6	37

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Variable	December	Total	Valid
Baro (Corrected)	100%	2976	2976
10m Temp	100%	2976	2976
2m Temp	100%	2976	2976
A1	100%	2976	2976
A1_Scaled	100%	2976	2976
Assumed Temp	100%	2976	2976
Barometric	100%	2976	2976
Config	100%	2976	2976
Daily Evap	100%	2976	2976
Daily Rain	100%	2976	2976
Delta T	100%	2976	2976
Dew Point	100%	2976	2976
Dig-In	100%	2976	2976
Dig-Latch	100%	2976	2976
ESN	100%	2976	2976
FDI	100%	2976	2976
Heat Index	100%	2976	2976
Humidity	100%	2976	2976
Mobile Signal	100%	2976	2976
Rain	100%	2976	2976
Raw Evap	100%	2976	2976
S Class	100%	2976	2976
Scalar WS	100%	2976	2976
Sigma	100%	2976	2976
Site	0.0%	2976	0
Solar Radiation	100%	2976	2976
Vector WD	100%	2976	2976
Vector WS	100%	2976	2976
Volts	100%	2976	2976
Wind Chill	100%	2976	2976
Wind Direction	100%	2976	2976
Wind Speed	100%	2976	2976
WS Avg	100%	2976	2976
WS Gust	100%	2976	2976