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# Mannering Colliery Monthly Website Report – February 2024

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<b>Site:</b>	Mannering Colliery
<b>Department:</b>	Technical Services
<b>Report Title:</b>	Monthly Environmental Report – February 2024
<b>Report Date:</b>	14 March 2024
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## Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of February 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	<a href="#">EPL 0191 - 16 June 2023</a>

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.

### 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 – PM<sub>10</sub>
- Air Quality – PM<sub>2.5</sub>; and
- Meteorological data.

### Definitions

g/m<sup>2</sup>/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 **February 2024**

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

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## Monitoring Results

### Water – Quality

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

February 2024				
<b>EPL</b>	191			
<b>Licensee</b>	Great Southern Energy Pty Ltd			
<b>Premises</b>	Manning Colliery			
<b>Location</b>	LDP001 (EPA ID # 1)			
<b>Sample Frequency</b>	Weekly			
<b>pH limit</b>	6.5 - 8.5			
<b>TSS limit (mg/L)</b>	50			
<b>Oil and grease limit (mg/L)</b>	10			
Water Quality Results				
Date	pH	TSS (mg/L)	Oil and grease (mg/L)	Electrical Conductivity (µS/cm)
06/02/2024	7.82	11	<5	28100
12/02/2024	7.92	8	<5	23600
20/02/2024	7.81	21	<5	27000
22/02/2024	7.87	<5	<5	27400
26/02/2024	7.83	11	<5	28300
29/02/2024	7.83	9	<5	28300
<b>Average</b>	7.85	12	<	27117

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

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

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Sub-Matrix: WATER (Matrix: WATER)		Sample ID		LDP001
Sampling date / time			29-Feb-2024 15:00	
Compound	CAS Number	LOR	Unit	ES2406690-001
				Result
<b>ED040F: Dissolved Major Anions</b>				
Sulfur as S	63705-05-5	1	mg/L	150
Silicon as SiO2	14464-46-1	0.1	mg/L	10.9
<b>ED093T: Total Major Cations</b>				
Calcium	7440-70-2	1	mg/L	263
Magnesium	7439-95-4	1	mg/L	366
Potassium	7440-09-7	1	mg/L	49
<b>EG020F: Dissolved Metals by ICP-MS</b>				
Aluminium	7429-90-5	10	µg/L	<100
Beryllium	7440-41-7	1	µg/L	<10
Cadmium	7440-43-9	0.1	µg/L	<1.0
Chromium	7440-47-3	1	µg/L	<10
Cobalt	7440-48-4	1	µg/L	<10
Copper	7440-50-8	1	µg/L	<10
Lead	7439-92-1	1	µg/L	<10
Manganese	7439-96-5	1	µg/L	66
Molybdenum	7439-98-7	1	µg/L	<10
Nickel	7440-02-0	1	µg/L	<10
Selenium	7782-49-2	10	µg/L	<100
Silver	7440-22-4	1	µg/L	<10
<b>EG020T: Total Metals by ICP-MS</b>				
Aluminium	7429-90-5	10	µg/L	<100
Antimony	7440-36-0	1	µg/L	<10
Arsenic	7440-38-2	1	µg/L	<10
Beryllium	7440-41-7	1	µg/L	<10
Barium	7440-39-3	1	µg/L	190
Cadmium	7440-43-9	0.1	µg/L	<1.0
Chromium	7440-47-3	1	µg/L	<10
<b>EG020T: Total Metals by ICP-MS - Continued</b>				
Cobalt	7440-48-4	1	µg/L	<10
Copper	7440-50-8	1	µg/L	<10
Lead	7439-92-1	1	µg/L	<10
Lithium	7439-93-2	1	µg/L	721
Molybdenum	7439-98-7	1	µg/L	52
Nickel	7440-02-0	1	µg/L	<10
Selenium	7782-49-2	10	µg/L	<100
Silver	7440-22-4	1	µg/L	<10
Tin	7440-31-5	1	µg/L	<10
Titanium	7440-32-6	10	µg/L	<100
Vanadium	7440-62-2	10	µg/L	<100
Zinc	7440-66-6	5	µg/L	<52
Boron	7440-42-8	50	µg/L	280
Iron	7439-89-6	50	µg/L	<100
<b>EG035F: Dissolved Mercury by FIMS</b>				
Mercury	7439-97-6	0.1	µg/L	<0.1
<b>EG035T: Total Recoverable Mercury by FIMS</b>				
Mercury	7439-97-6	0.1	µg/L	<0.1
<b>EK055G: Ammonia as N by Discrete Analyser</b>				
Ammonia as N	7664-41-7	0.01	mg/L	0.04
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>				
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 February 2024 at Mannering Colliery are summarised below.

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

Date (24 hour period)	LDP 1 Volume (kL/day)	Rainfall (mm)
01/02/2024	753.24	0.2
02/02/2024	1006.19	4.4
03/02/2024	204.5	0
04/02/2024	77.75	0
05/02/2024	265.76	0
06/02/2024	1229.64	4.8
07/02/2024	952.81	5.2
08/02/2024	730.63	0
09/02/2024	1498.43	1.4
10/02/2024	1060.59	8.4
11/02/2024	776.14	0
12/02/2024	1137.54	0
13/02/2024	933.29	0
14/02/2024	801.74	3.6
15/02/2024	1161.86	11.2
16/02/2024	2384.36	35.2
17/02/2024	1304.76	0
18/02/2024	787.2	0
19/02/2024	2064.7	26.4
20/02/2024	2212.51	27
21/02/2024	1303.79	0.6
22/02/2024	1122.96	0
23/02/2024	885.83	9.4
24/02/2024	1408.37	5.2
25/02/2024	822.49	0
26/02/2024	792.47	0
27/02/2024	1243.48	5.2
28/02/2024	778.81	0.2
29/02/2024	953.92	15

Average	1057.10kL/day	6 mm/day
Maximum	2384.36kL/day	35 mm/day

There were no exceedances of volumetric discharge limits at LDP1 in February 2024.

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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 FY2023-2024		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative ML YTD)
July 2023	23	23
August 2023	30	53
September 2023	26	79
October 2023	30	109
November 2023	18	127
December 2023	28	155
January 2024	32	187
February 2024	27	214
March 2024		
April 2024		
May 2024		
June 2024		

## Air Quality – Depositional Dust

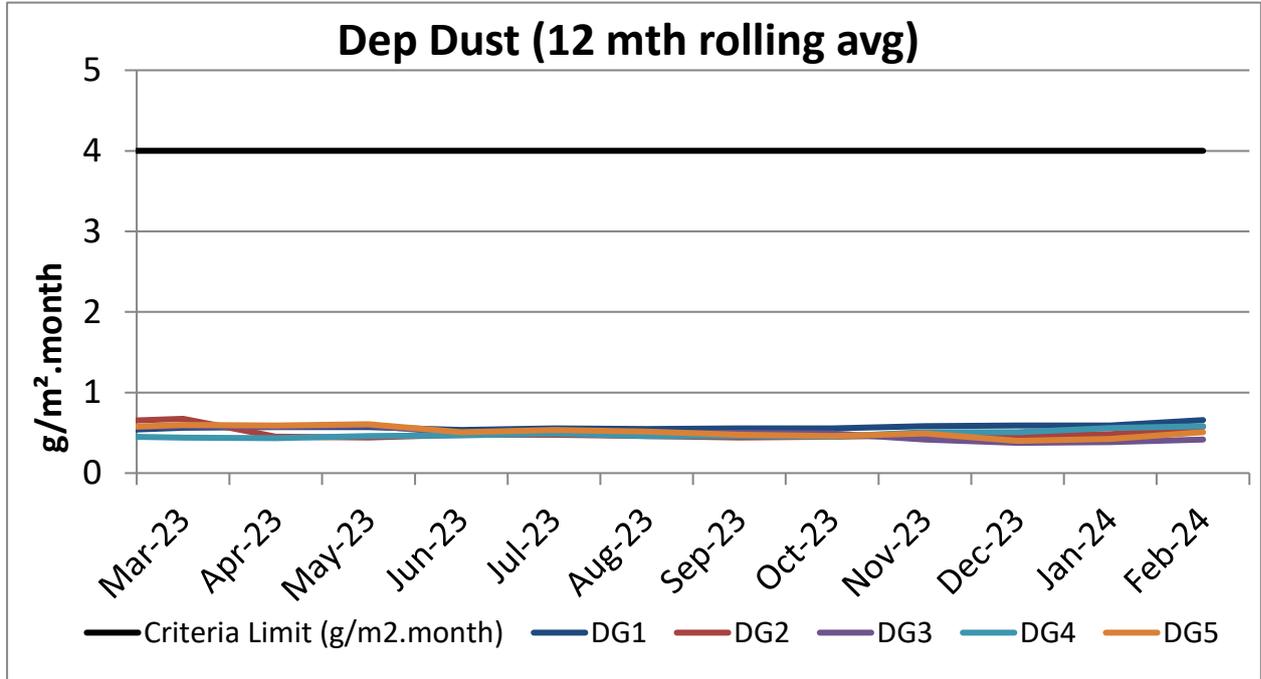
Monthly depositional dust results are shown below.

February 2024		
<b>EPL</b>	191	
<b>Limits</b>	Max. total deposited dust level	4g/m <sup>2</sup> /month
	Max. increase in deposited dust level	2g/m <sup>2</sup> /month
<b>Sampling Date</b>	02/01/2024 – 02/02/2024	
EPA ID no.	Site	Insoluble Matter (g/m <sup>2</sup> /month)
3	DG1	<b>1.3</b>
4	DG2	<b>1.3</b>
5	DG3	<b>0.6</b>
6	DG4	<b>0.7</b>
7	DG5	<b>1.2</b>
<b>Notes:</b>	Sampling locations provided in Delta Coal Air Quality and Greenhouse Gas Management Plan available on the Delta Coal website.	

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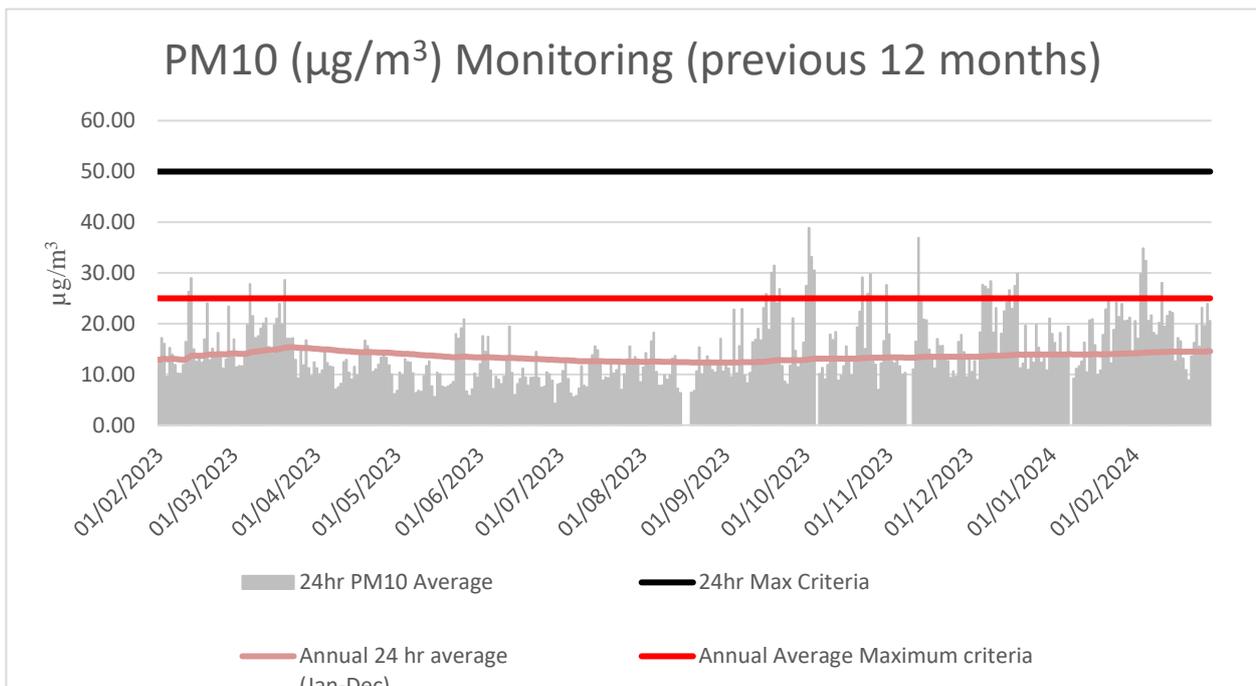
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A 12-month rolling average of depositional dust concentrations has been presented below. Manning Colliery's dust gauges are located around the perimeter of the Manning Colliery site boundary.



## Air Quality – $\text{PM}_{10}$

The 24hr  $\text{PM}_{10}$  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 PM<sub>10</sub> average maximum criteria for February 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 **97.6%** for the month of February 2024.

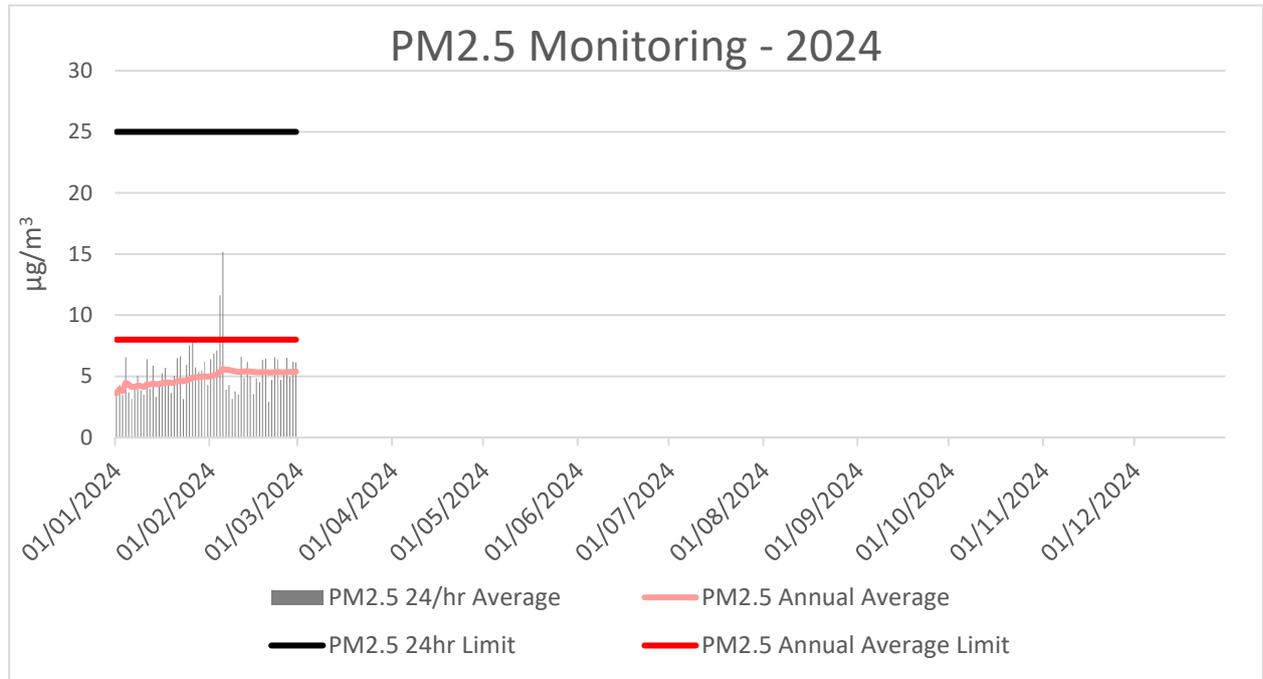
Variable	February	Total	Valid
Baro (Corrected)	99.1%	2784	2758
10m Temp	99.1%	2784	2758
2m Temp	99.1%	2784	2758
A1	99.1%	2784	2758
A1_Scaled	99.1%	2784	2758
Assumed Temp	99.1%	2784	2758
Barometric	99.1%	2784	2758
Config	99.1%	2784	2758
Daily Evap	99.1%	2784	2758
Daily Rain	99.1%	2784	2758
Delta T	99.1%	2784	2758
Dew Point	99.1%	2784	2758
Dig-In	99.1%	2784	2758
Dig-Latch	99.1%	2784	2758
ESN	99.1%	2784	2758
FDI	99.1%	2784	2758
Heat Index	99.1%	2784	2758
Humidity	99.1%	2784	2758
Mobile Signal	99.1%	2784	2758
Rain	99.1%	2784	2758
Raw Evap	99.1%	2784	2758
S Class	99.1%	2784	2758
Scalar WS	99.1%	2784	2758
Sigma	99.1%	2784	2758
Site	0.0%	2784	0
Solar Radiation	99.1%	2784	2758
Vector WD	99.1%	2784	2758
Vector WS	99.1%	2784	2758
Volts	99.1%	2784	2758
Wind Chill	99.1%	2784	2758
Wind Direction	99.1%	2784	2758
Wind Speed	99.1%	2784	2758
WS Avg	99.1%	2784	2758
WS Gust	99.1%	2784	2758

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## Air Quality – PM2.5

Delta Coal utilises PM<sub>2.5</sub> data obtained from Delta Electricity owned and operated beta attenuation monitor (BAM). The PM<sub>2.5</sub> monitor is located on Tingley Road, Wyee.



There were no exceedances of the PM<sub>2.5</sub> daily average limit in February 2024. The 12-month rolling average PM<sub>2.5</sub> value on 29 February was 5.38 µg/m<sup>3</sup>. PM<sub>2.5</sub> data availability in February was 100%. The 2024 year to date PM<sub>2.5</sub> data availability is 100%.

## 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	11 March 2024		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-24	53.6	13.8	40.9
Feb-24	163	16.4	39

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Variable	February	Total	Valid
Baro (Corrected)	99.1%	2784	2758
10m Temp	99.1%	2784	2758
2m Temp	99.1%	2784	2758
A1	99.1%	2784	2758
A1_Scaled	99.1%	2784	2758
Assumed Temp	99.1%	2784	2758
Barometric	99.1%	2784	2758
Config	99.1%	2784	2758
Daily Evap	99.1%	2784	2758
Daily Rain	99.1%	2784	2758
Delta T	99.1%	2784	2758
Dew Point	99.1%	2784	2758
Dig-In	99.1%	2784	2758
Dig-Latch	99.1%	2784	2758
ESN	99.1%	2784	2758
FDI	99.1%	2784	2758
Heat Index	99.1%	2784	2758
Humidity	99.1%	2784	2758
Mobile Signal	99.1%	2784	2758
Rain	99.1%	2784	2758
Raw Evap	99.1%	2784	2758
S Class	99.1%	2784	2758
Scalar WS	99.1%	2784	2758
Sigma	99.1%	2784	2758
Site	0.0%	2784	0
Solar Radiation	99.1%	2784	2758
Vector WD	99.1%	2784	2758
Vector WS	99.1%	2784	2758
Volts	99.1%	2784	2758
Wind Chill	99.1%	2784	2758
Wind Direction	99.1%	2784	2758
Wind Speed	99.1%	2784	2758
WS Avg	99.1%	2784	2758
WS Gust	99.1%	2784	2758