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# Manning Colliery Monthly Website Report – January 2024

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<b>Site:</b>	<b>Manning Colliery</b>
<b>Department:</b>	<b>Technical Services</b>
<b>Report Title:</b>	<b>Monthly Environmental Report – January 2024</b>
<b>Report Date:</b>	<b>14 February 2024</b>
<b>Distribution:</b>	<b>Delta Coal website</b>

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# Monthly Website Report

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## Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of January 2023.

## 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 - 14 April 2021</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.

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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 – 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: 14 April 2021)

ALS - Dust Deposition Report **January 2023**

ALS – MC Water Analysis Reports **January 2023**

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## Monitoring Results

### Water – Quality

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

January 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)
03/01/2024	7.78	8	<5	28000
09/01/2024	7.81	6	<5	28000
16/01/2024	7.78	<5	<5	28100
25/01/2024	7.71	<5	<5	28500
29/01/2024	7.89	10	<5	24400
<b>Average</b>	7.79	5.8	<5	27400

There were no exceedances of water quality criteria in January 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	25-Jan-2024 14:00
Compound	CAS Number	LOR	Unit	ES2402568-001
				Result
<b>ED040F: Dissolved Major Anions</b>				
Sulfur as S	63705-05-5	1	mg/L	153
Silicon as SiO2	14464-46-1	0.1	mg/L	14.3
<b>ED093T: Total Major Cations</b>				
Calcium	7440-70-2	1	mg/L	265
Magnesium	7439-95-4	1	mg/L	368
Potassium	7440-09-7	1	mg/L	45
<b>EG020F: Dissolved Metals by ICP-MS</b>				
Aluminium	7429-90-5	10	µg/L	<100
Arsenic	7440-38-2	1	µg/L	<10
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	64
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
Vanadium	7440-62-2	10	µg/L	<100
Zinc	7440-66-6	5	µg/L	<50
<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
<b>EG020T: Total Metals by ICP-MS - Continued</b>				
Barium	7440-39-3	1	µg/L	290
Cadmium	7440-43-9	0.1	µg/L	<0.1
Chromium	7440-47-3	1	µg/L	<1
Copper	7440-50-8	1	µg/L	<1
Cobalt	7440-48-4	1	µg/L	<1
Nickel	7440-02-0	1	µg/L	2
Lead	7439-92-1	1	µg/L	<1
Zinc	7440-66-6	5	µg/L	10
Lithium	7439-93-2	1	µg/L	482
Molybdenum	7439-98-7	1	µg/L	8
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
Boron	7440-42-8	50	µg/L	260
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	0.03
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>				
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 January 2024 at Manning Colliery are summarised below.

EPL	191
Licensee	Great Southern Energy Pty Ltd
Premises	Manning 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)
01/01/2024	0.92	0.2
02/01/2024	1642.54	0
03/01/2024	1094.12	0
04/01/2024	965.38	2
05/01/2024	958.53	1
06/01/2024	1145.46	0
07/01/2024	1223.59	0
08/01/2024	1292.33	6.4
09/01/2024	1368.93	0.2
10/01/2024	1258.28	0
11/01/2024	1010.33	0
12/01/2024	440.04	0.4
13/01/2024	755.42	0
14/01/2024	1652.74	26.2
15/01/2024	1213.45	1.8
16/01/2024	1327.89	2.2
17/01/2024	1111.13	8.6
18/01/2024	1036.34	3.2
19/01/2024	850.38	0
20/01/2024	1192.27	0
21/01/2024	828.57	0
22/01/2024	1067.44	0
23/01/2024	980.19	0.6
24/01/2024	583.12	0
25/01/2024	745.66	0
26/01/2024	1186.11	0
27/01/2024	773.97	0
28/01/2024	1190.21	0
29/01/2024	744.63	0
30/01/2024	935.31	0
31/01/2024	952.69	0.8

Average	1017kL/day	1.7 mm/day
Maximum	1652.74kL/day	26.2 mm/day

There were no exceedances of volumetric discharge limits at LDP1 in January 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 FY2022-2023		
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

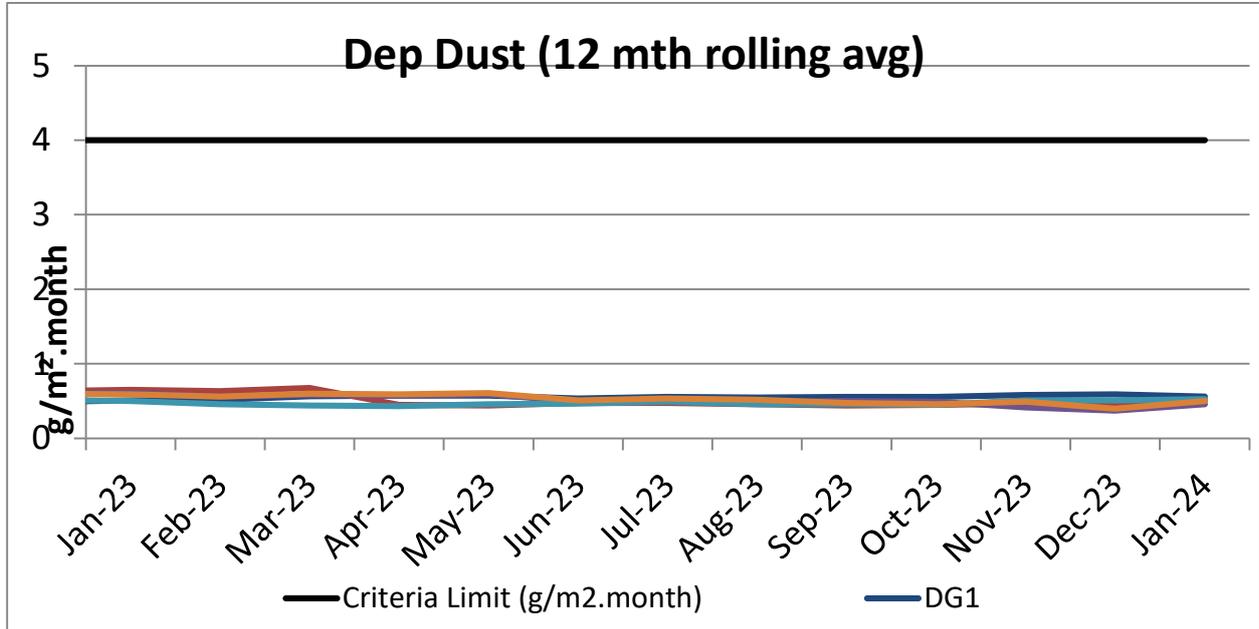
Monthly depositional dust results are shown below.

January 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>	01/12/2023 – 02/01/2023	
EPA ID no.	Site	Insoluble Matter (g/m <sup>2</sup> /month)
3	DG1	<b>0.6</b>
4	DG2	<b>0.7</b>
5	DG3	<b>0.6</b>
6	DG4	<b>1.1</b>
7	DG5	<b>0.7</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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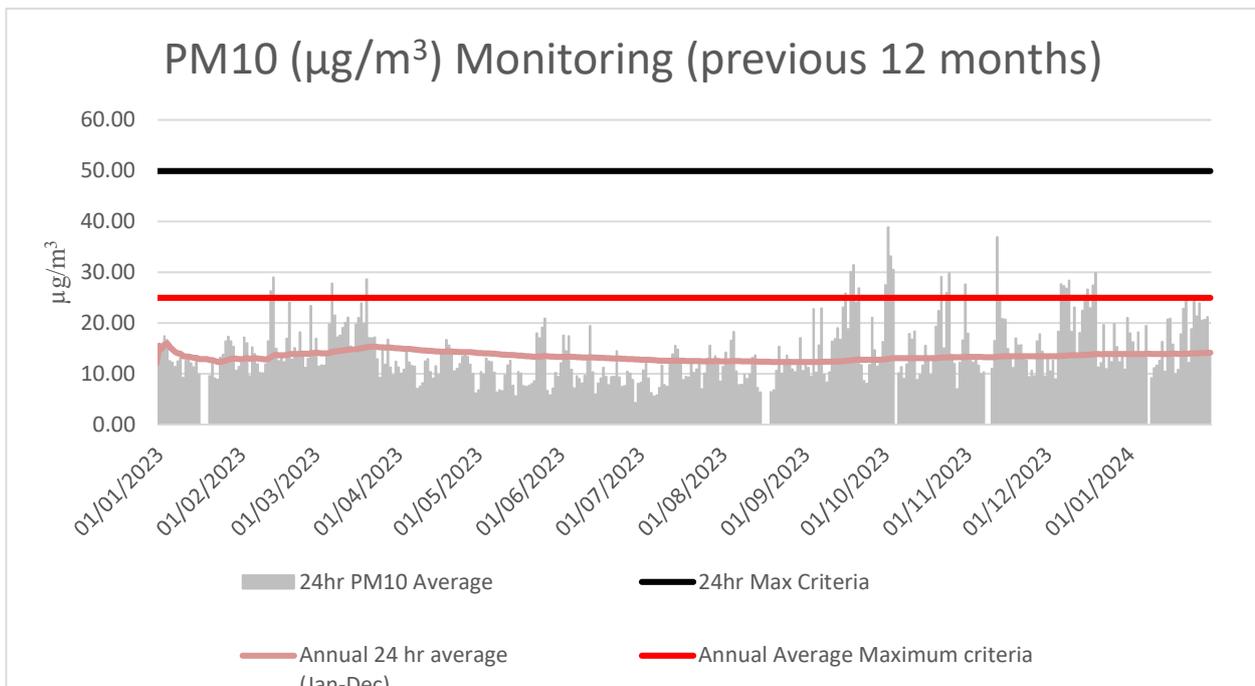
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A 12-month rolling average of depositional dust concentrations has been presented below. Manning Colliery’s dust gauges are located around the perimeter of the Manning Colliery site boundary.



## Air Quality – PM<sub>10</sub>

The 24hr PM<sub>10</sub> 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 PM<sub>10</sub> average maximum criteria for January 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 **97.4%** for the month of January 2024.

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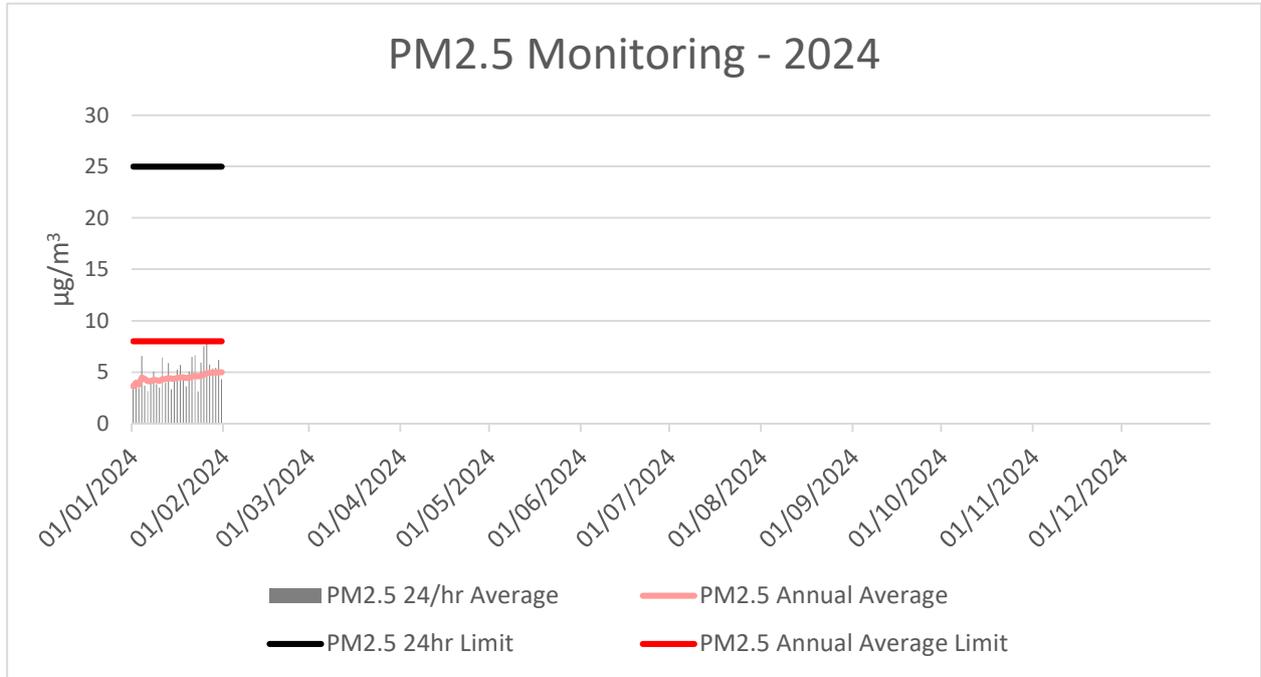
Variable	January	Total	Valid
A/C Temp	98.4%	8928	8788
A1	98.4%	8928	8788
A1_Scaled	98.4%	8928	8788
Bypass Flow	98.4%	8928	8787
Cap Temp	98.4%	8928	8787
Case Temp	98.4%	8928	8787
Config	98.4%	8928	8788
Dew Point	98.4%	8928	8787
Dig-In	98.4%	8928	8788
Dig-Latch	98.4%	8928	8788
ESN	98.4%	8928	8788
Filter Freq	98.4%	8928	8787
Filter Load	98.4%	8928	8787
Humidity	98.4%	8928	8787
MC	98.4%	8928	8787
MC 12Hr	98.4%	8928	8787
MC 1Hr	98.4%	8928	8787
MC 24Hr	98.4%	8928	8787
MC 30min	98.4%	8928	8787
MC 8Hr	98.4%	8928	8787
MC Total	98.4%	8928	8787
Mobile Signal	98.4%	8928	8788
Noise	98.4%	8928	8787
PM10 Flow	98.4%	8928	8787
Pressure	98.4%	8928	8787
Site	0.0%	8928	0
Temperature	98.4%	8928	8787
Tube Temp	98.4%	8928	8787
Vac Pressure	98.4%	8928	8787
Volts	98.4%	8928	8788

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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 January 2024. The 12-month rolling average PM<sub>2.5</sub> value on 31 January was 4.98 µg/m<sup>3</sup>. PM<sub>2.5</sub> data availability in January 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	7 February 2024		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-24	53.6	13.8	40.9

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Variable	January	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