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# Mannering Colliery Monthly Website Report – June 2024

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<b>Site:</b>	Mannering Colliery
<b>Department:</b>	Technical Services
<b>Report Title:</b>	Monthly Environmental Report – June 2024
<b>Report Date:</b>	10 July 2024
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## Summary

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

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

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## Monitoring Results

Water – Quality

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

June 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)
04/06/2024	7.83	10	<5	8,180
13/06/2024	7.85	11	<5	28,200
17/06/2024	7.75	11	<5	26,200
25/06/2024	7.76	<5	<5	27,400
<b>Average</b>	7.8	8.6	<5	22,495

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

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

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## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID		LDP001
		Sampling date / time		17-Jun-2024 10:25
Compound	CAS Number	LOR	Unit	WN2407402-001
				Result
<b>ED040F: Dissolved Major Anions</b>				
Sulfur as S	63705-05-5	1	mg/L	146
Silicon as SiO2	14464-46-1	0.1	mg/L	12.0
<b>ED093T: Total Major Cations</b>				
Calcium	7440-70-2	1	mg/L	281
Magnesium	7439-95-4	1	mg/L	329
Potassium	7440-09-7	1	mg/L	41
<b>EG020F: Dissolved Metals by ICP-MS</b>				
Aluminium	7429-90-5	10	µg/L	<10
Silver	7440-22-4	1	µg/L	<1
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
Cobalt	7440-48-4	1	µg/L	<1
Chromium	7440-47-3	1	µg/L	<1
Copper	7440-50-8	1	µg/L	<1
Manganese	7439-96-5	1	µg/L	43
Molybdenum	7439-98-7	1	µg/L	6
Nickel	7440-02-0	1	µg/L	2
Lead	7439-92-1	1	µg/L	<1
Selenium	7782-49-2	10	µg/L	<10
Vanadium	7440-62-2	10	µg/L	<10
Zinc	7440-66-6	5	µg/L	15
<b>EG020T: Total Metals by ICP-MS</b>				
Aluminium	7429-90-5	10	µg/L	<10
Silver	7440-22-4	1	µg/L	<1
Arsenic	7440-38-2	1	µg/L	1
Boron	7440-42-8	50	µg/L	400
Barium	7440-39-3	1	µg/L	228
Titanium	7440-32-6	10	µg/L	<10
Beryllium	7440-41-7	1	µg/L	<1
Cadmium	7440-43-9	0.1	µg/L	<0.1
Cobalt	7440-48-4	1	µg/L	<1
Chromium	7440-47-3	1	µg/L	<1
Copper	7440-50-8	1	µg/L	<1
Lithium	7439-93-2	1	µg/L	662
Molybdenum	7439-98-7	1	µg/L	8
Nickel	7440-02-0	1	µg/L	3
Lead	7439-92-1	1	µg/L	<1
Antimony	7440-36-0	1	µg/L	<1
Selenium	7782-49-2	10	µg/L	<10
Tin	7440-31-5	1	µg/L	<1
Vanadium	7440-62-2	10	µg/L	<10
Zinc	7440-66-6	5	µg/L	23
Iron	7439-89-6	50	µg/L	60
<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	0.95
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>				
Total Phosphorus as P	---	0.01	mg/L	0.03

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### Water – Volume

Monthly water volumes discharged via MC's LDP1 during June 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)
01/06/2024	2347.87	75.2
02/06/2024	2940.02	15.8
03/06/2024	1172.41	0
04/06/2024	1126.59	0
05/06/2024	1904.32	8.2
06/06/2024	827.04	9.4
07/06/2024	1394.35	4.6
08/06/2024	1218.19	0.4
09/06/2024	1162.21	0
10/06/2024	1134.98	0
11/06/2024	505.54	0
12/06/2024	1383.84	0
13/06/2024	706.76	0
14/06/2024	1030.02	7.8
15/06/2024	1648.16	16.6
16/06/2024	1425.29	0
17/06/2024	1140.94	0
18/06/2024	1756.83	0
19/06/2024	792.16	0
20/06/2024	913.66	0
21/06/2024	1119.89	0
22/06/2024	1125.68	7.8
23/06/2024	1256.56	3
24/06/2024	1179.53	0.4
25/06/2024	874.25	0
26/06/2024	1113.98	0
27/06/2024	1090.05	0.2
28/06/2024	1112.27	0
29/06/2024	1155.48	0
30/06/2024	1395.07	13.8

Average	1,265/day	5.4 mm/day
Maximum	2,940kL/day	75.2 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 FY2023-2024		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative ML YTD)
July 2023	23	23
August 2023	27	50
September 2023	26	77
October 2023	24	101
November 2023	23	124
December 2023	24	148
January 2024	27	176
February 2024	23	199
March 2024	22	221
April 2024	16	237
May 2024	24	261
June 2024	26	287

## Air Quality – Depositional Dust

Monthly depositional dust results are shown below.

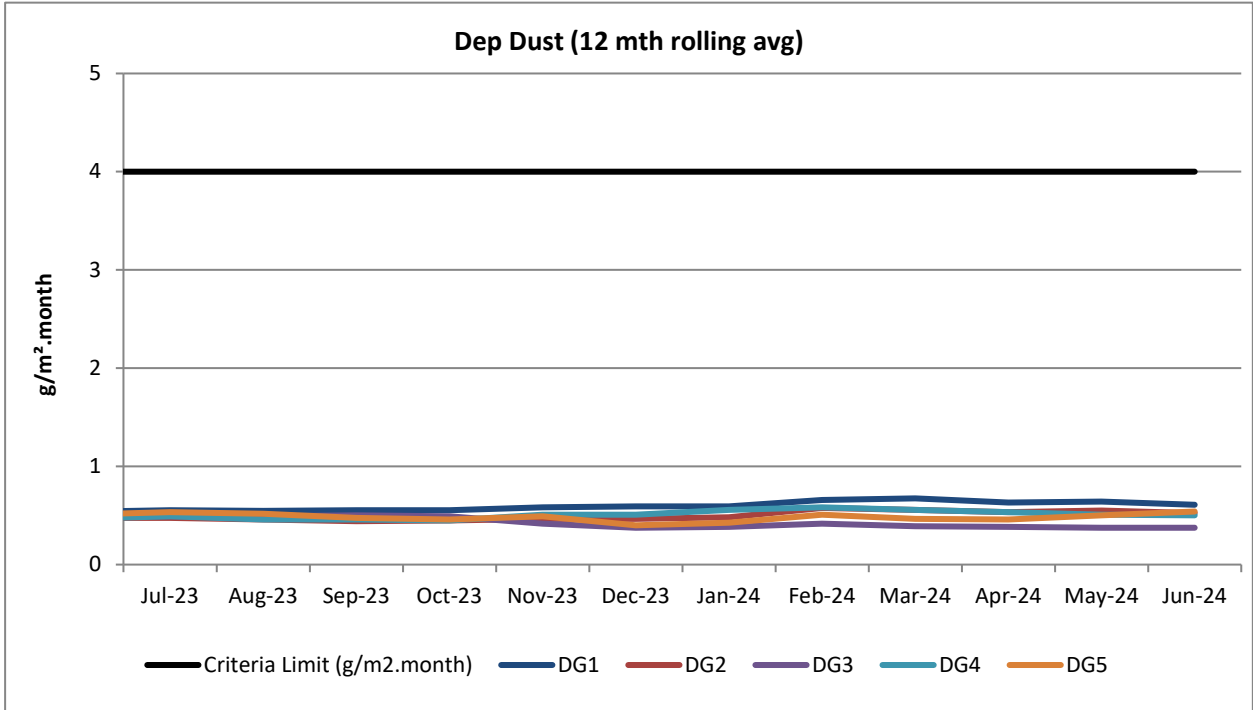
June 2024		
<b>EPL</b>	191	
<b>Limits</b>	Max. total deposited dust level	4g/m <sup>2</sup> /month
	Max. increase in deposited dust level	2g/m <sup>2</sup> /month
<b>Sampling Date</b>	03/05/2024 – 03/06/2024	
EPA ID no.	Site	Insoluble Matter (g/m <sup>2</sup> /month)
3	DG1	<b>0.3</b>
4	DG2	<b>0.3</b>
5	DG3	<b>0.2</b>
6	DG4	<b>0.4</b>
7	DG5	<b>0.86</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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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.

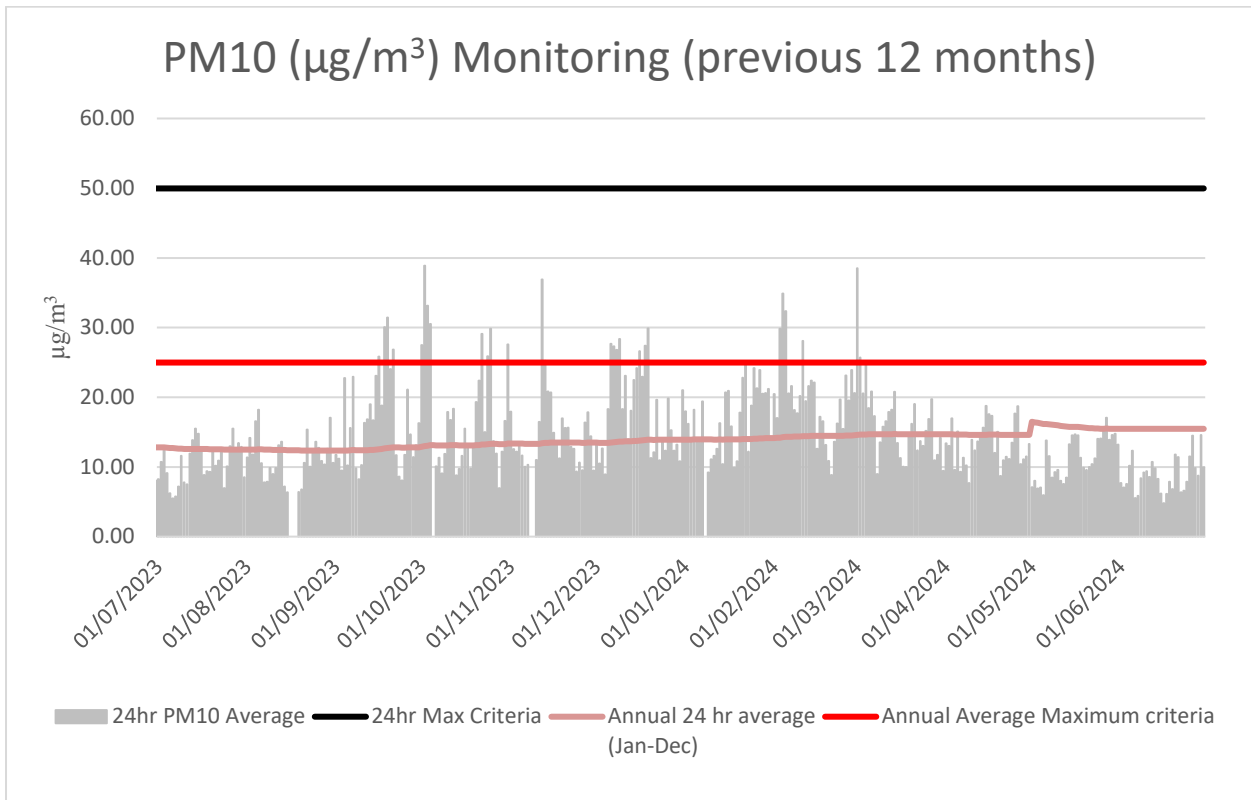


## Air Quality – PM<sub>10</sub>

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.

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Annual 24hr PM<sub>10</sub> average maximum criteria for June 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 98% for the month of June 2024.

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

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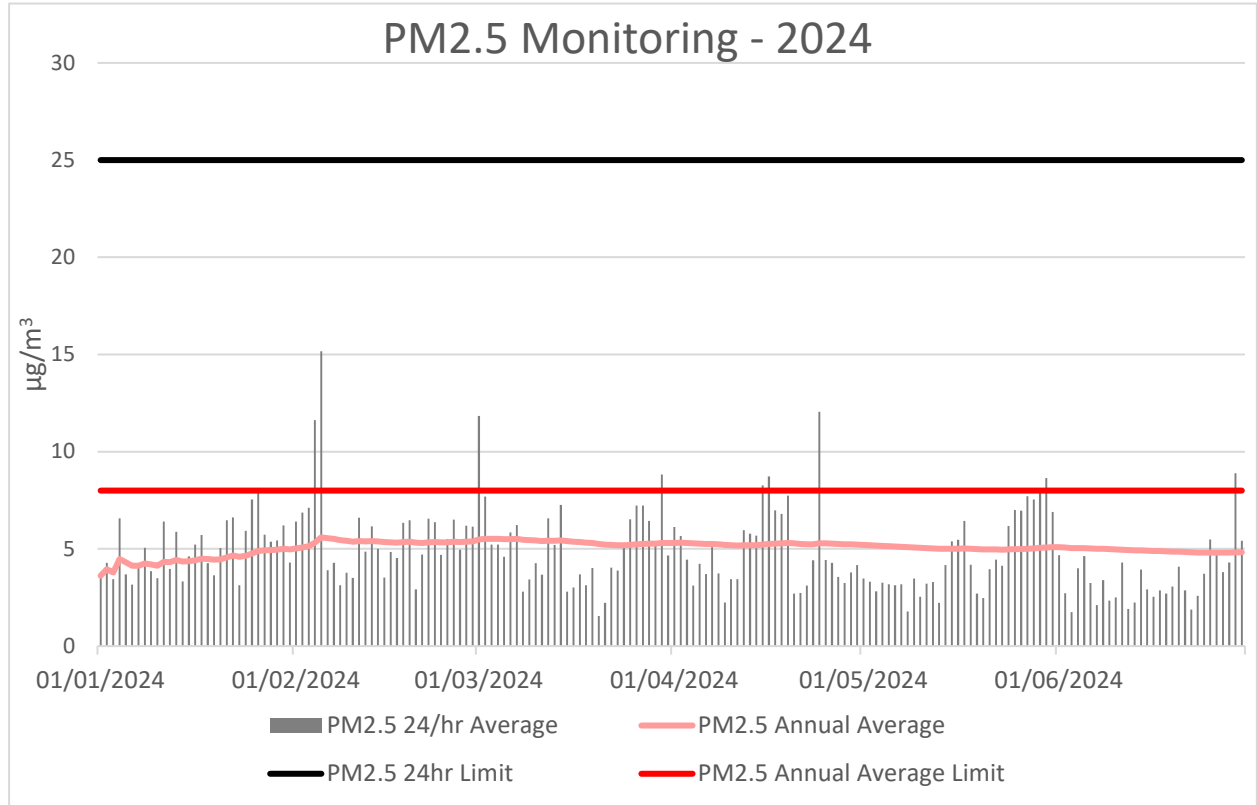
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## Air Quality – PM2.5

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 June 2024. The 12-month rolling average PM<sub>2.5</sub> value on 30 June was 4.8  $\mu\text{g}/\text{m}^3$ . PM<sub>2.5</sub> data availability in June was 100%. The 2024 year to date PM<sub>2.5</sub> data availability is 100%.

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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	10 July 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

Variable	June	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