



Manning Colliery Monthly Website Report – August 2024

Site:	Manning Colliery
Department:	Technical Services
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Summary

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

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

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Monitoring Results

Water – Quality

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

August 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)
6/08/2024	7.83	6	<5	15400
13/08/2024	7.82	8	<5	17400
22/08/2024	8.01	7	<5	16000
28/08/2024	7.72	<5	<5	27700
Average	7.845	7	<5	19125

There were no exceedances of water quality criteria in August 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		22-Aug-2024 10:40	
Compound	CAS Number	LOR	Unit	EN2409506-001	
				Result	
ED040F: Dissolved Major Anions					
Sulfur as S	63705-05-5	1	mg/L	56	
Silicon as SiO2	14464-46-1	0.1	mg/L	5.8	
ED093T: Total Major Cations					
Calcium	7440-70-2	1	mg/L	130	
Magnesium	7439-95-4	1	mg/L	110	
Potassium	7440-09-7	1	mg/L	15	
EG020F: Dissolved Metals by ICP-MS					
Aluminium	7429-90-5	10	µg/L	<10	
Arsenic	7440-38-2	1	µg/L	2	
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	20	
Molybdenum	7439-98-7	1	µg/L	4	
Nickel	7440-02-0	1	µg/L	1	
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	16	
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	2	
Beryllium	7440-41-7	1	µg/L	<1	
EG020T: Total Metals by ICP-MS - Continued					
Barium	7440-39-3	1	µg/L	185	
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	225	
Molybdenum	7439-98-7	1	µg/L	6	
Nickel	7440-02-0	1	µg/L	1	
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	15	
Boron	7440-42-8	50	µg/L	150	
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	0.16	
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 August 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)
01/08/2024	659.71	3
02/08/2024	717.62	0.6
03/08/2024	718.85	0.4
04/08/2024	1058.82	0
05/08/2024	931.26	9.6
06/08/2024	1084.2	0.6
07/08/2024	1223.97	0.2
08/08/2024	1085.58	0
09/08/2024	879.29	0
10/08/2024	765.1	0
11/08/2024	1024.63	8.6
12/08/2024	1166.73	3.8
13/08/2024	647.53	4
14/08/2024	1056.48	14.8
15/08/2024	1208.93	7.2
16/08/2024	1324.09	1.6
17/08/2024	1186.23	0
18/08/2024	835.27	0
19/08/2024	480.39	0.2
20/08/2024	830.71	0
21/08/2024	569.92	0
22/08/2024	417.02	0
23/08/2024	7	0
24/08/2024	0	0.6
25/08/2024	291.14	1.2
26/08/2024	865.1	0
27/08/2024	857.99	0
28/08/2024	794.71	0
29/08/2024	849.03	0
30/08/2024	775.5	0
31/08/2024	838.83	0

Average	810.71 kL/day	1.82 mm/day
Maximum	1324.09 kL/day	14.8 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

Air Quality – Depositional Dust

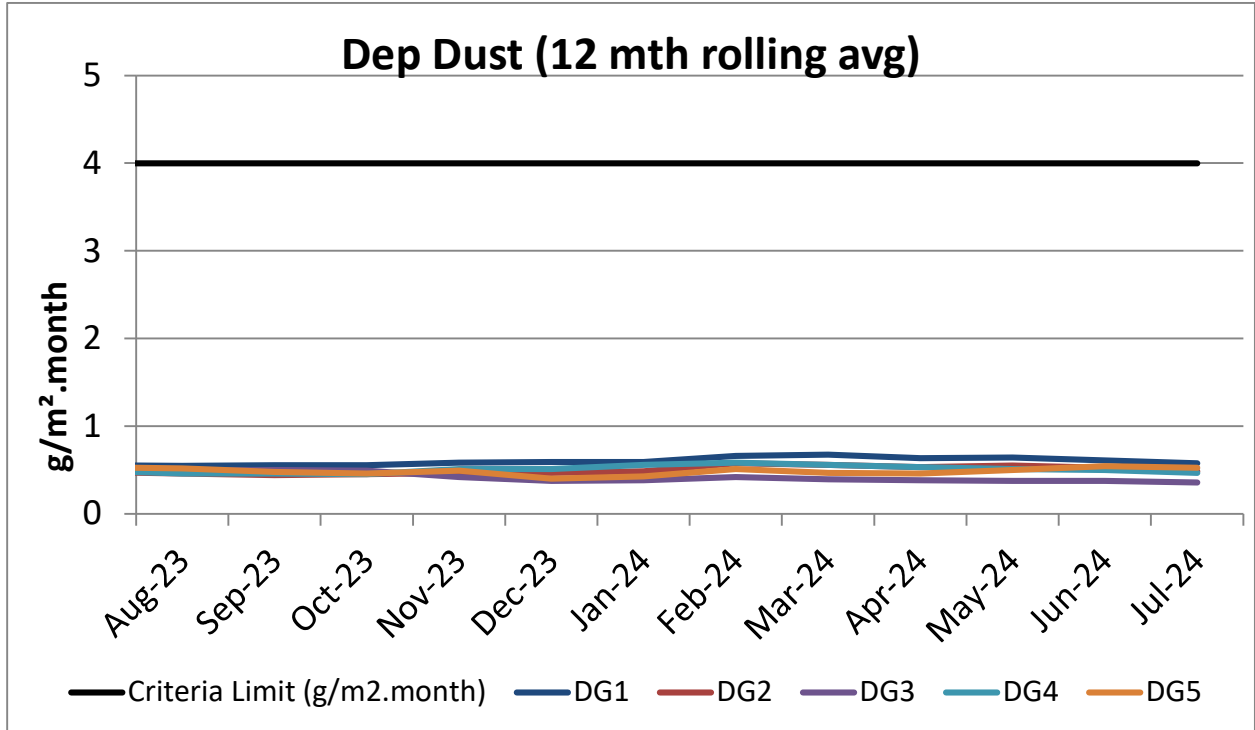
Monthly depositional dust results are shown below.

August 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	04/07/2024 – 02/08/2024	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.6
4	DG2	0.4
5	DG3	0.7
6	DG4	0.8
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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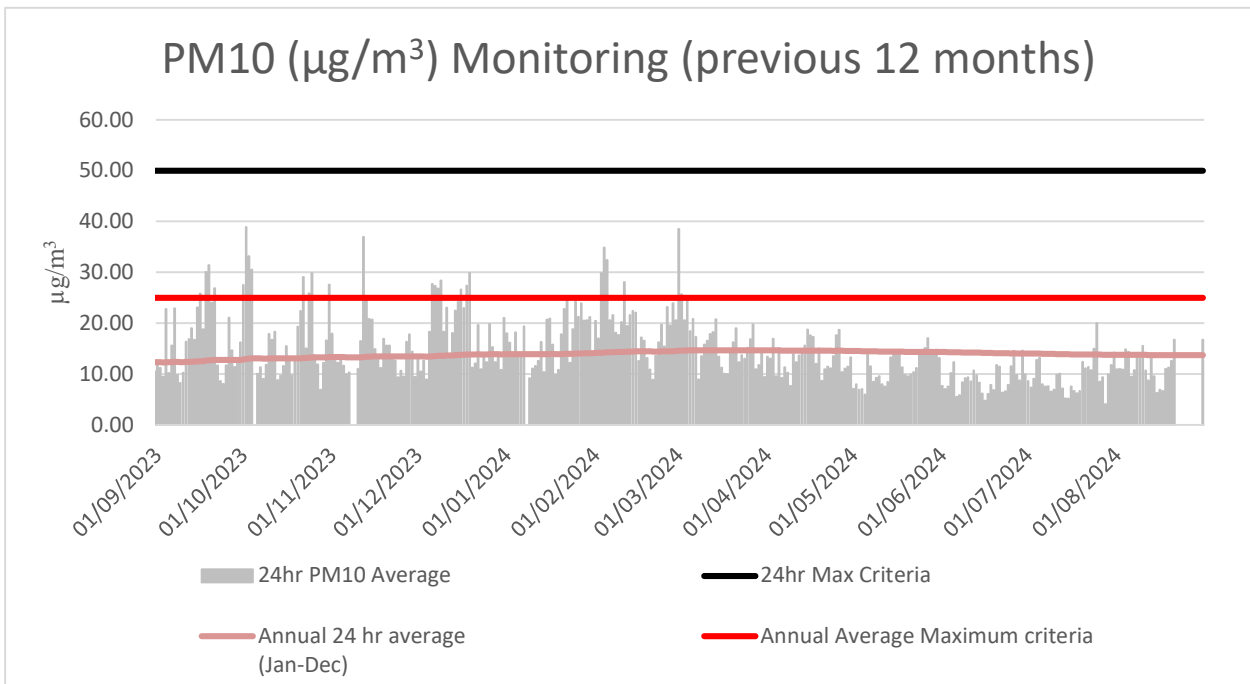
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A 12-month rolling average of depositional dust concentrations has been presented below. Manning Colliery's dust gauges are located around the perimeter of the Manning Colliery site boundary.



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 August 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 August 2024.

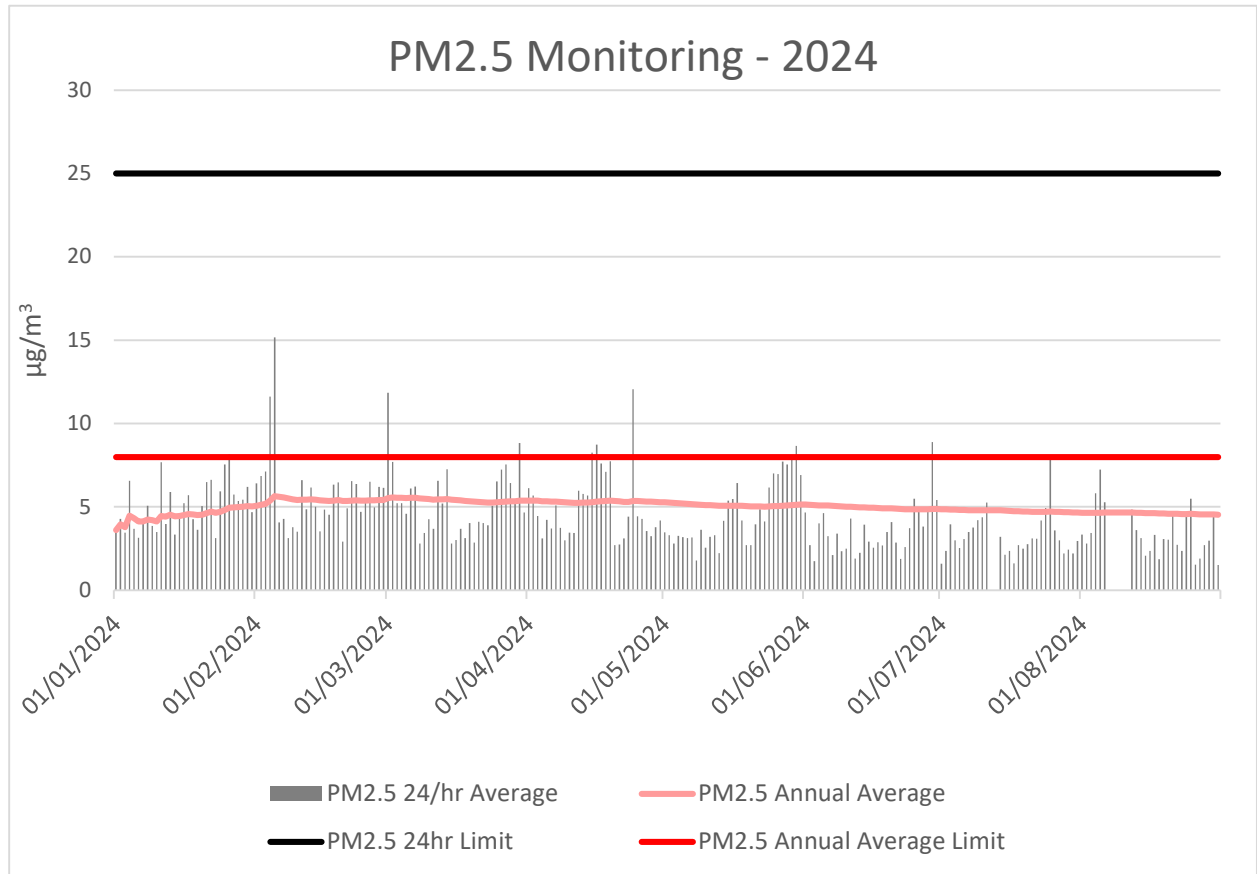
Variable	August	Total	Valid
A/C Temp	73.9%	8928	6594
A1_Scaled	73.9%	8928	6595
Band	73.9%	8928	6595
Bypass Flow	69.1%	8928	6173
Cap Temp	69.1%	8928	6173
Case Temp	69.1%	8928	6173
Config	73.9%	8928	6595
Dew Point	69.1%	8928	6173
Dig-In	73.9%	8928	6595
Dig-Latch	73.9%	8928	6595
ESN	73.9%	8928	6595
Filter Freq	69.1%	8928	6173
Filter Load	69.1%	8928	6173
Humidity	69.1%	8928	6173
MC	69.1%	8928	6173
MC 12Hr	69.1%	8928	6173
MC 1Hr	69.1%	8928	6173
MC 24Hr	69.1%	8928	6173
MC 30min	69.1%	8928	6173
MC 8Hr	69.1%	8928	6173
MC Total	69.1%	8928	6173
Mobile Signal	73.9%	8928	6595
Noise	69.1%	8928	6173
PM10 Flow	69.1%	8928	6173
Pressure	69.1%	8928	6173
Site	0.0%	8928	0
Temperature	69.1%	8928	6173
Tube Temp	69.1%	8928	6173
Vac Pressure	69.1%	8928	6173
Volts	73.9%	8928	6595

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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 August 2024. The 12-month rolling average PM_{2.5} value on 31 August was 4.53 $\mu\text{g}/\text{m}^3$. PM_{2.5} data availability in July was 81%. The 2024 year to date PM_{2.5} data availability is 95.46%.

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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 September 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

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Variable	August	Total	Valid
Baro (Corrected)	99.9%	2976	2974
10m Temp	99.9%	2976	2974
2m Temp	99.9%	2976	2974
A1	99.9%	2976	2974
A1_Scaled	99.9%	2976	2974
Assumed Temp	99.9%	2976	2974
Barometric	99.9%	2976	2974
Config	99.9%	2976	2974
Daily Evap	99.9%	2976	2974
Daily Rain	99.9%	2976	2974
Delta T	99.9%	2976	2974
Dew Point	99.9%	2976	2974
Dig-In	99.9%	2976	2974
Dig-Latch	99.9%	2976	2974
ESN	99.9%	2976	2974
FDI	99.9%	2976	2974
Heat Index	99.9%	2976	2974
Humidity	99.9%	2976	2974
Mobile Signal	99.9%	2976	2974
Rain	99.9%	2976	2974
Raw Evap	99.9%	2976	2974
S Class	99.9%	2976	2974
Scalar WS	99.9%	2976	2974
Sigma	99.9%	2976	2974
Site	0.0%	2976	0
Solar Radiation	99.9%	2976	2974
Vector WD	99.9%	2976	2974
Vector WS	99.9%	2976	2974
Volts	99.9%	2976	2974
Wind Chill	99.9%	2976	2974
Wind Direction	99.9%	2976	2974
Wind Speed	99.9%	2976	2974
WS Avg	99.9%	2976	2974
WS Gust	99.9%	2976	2974