



Manning Colliery Monthly Website Report – April 2024

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Summary

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

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 **April 2024**

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

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Monitoring Results

Water – Quality

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

April 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)
04/04/2024	7.93	13	<5	29100
09/04/2024	7.69	14	<5	27500
15/04/2024	7.92	7	<5	28600
26/04/2024	7.90	10	<5	28600
Average	7.86	11	<5	28450

There were no exceedances of water quality criteria in April 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				26-Apr-2024 09:20
Compound	CAS Number	LOR	Unit	ES2413536-001 Result
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	145
Silicon as SiO2	14464-46-1	0.1	mg/L	12.9
ED093T: Total Major Cations				
Calcium	7440-70-2	1	mg/L	322
Magnesium	7439-95-4	1	mg/L	301
Potassium	7440-09-7	1	mg/L	41
EG020F: Dissolved Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	40
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
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	<5
Manganese	7439-96-5	1	µg/L	9
Molybdenum	7439-98-7	1	µg/L	2
Selenium	7782-49-2	10	µg/L	<10
Silver	7440-22-4	1	µg/L	<1
Vanadium	7440-62-2	10	µg/L	<10
EG020T: Total Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	40
Antimony	7440-36-0	1	µg/L	1
Arsenic	7440-38-2	1	µg/L	<1
Beryllium	7440-41-7	1	µg/L	<1
EG020T: Total Metals by ICP-MS - Continued				
Barium	7440-39-3	1	µg/L	192
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	3
Lead	7439-92-1	1	µg/L	<1
Zinc	7440-66-6	5	µg/L	24
Lithium	7439-93-2	1	µg/L	509
Molybdenum	7439-98-7	1	µg/L	6
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	410
Iron	7439-89-6	50	µg/L	90
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	0.87
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 April 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)
01/04/2024	909.51	0.00
02/04/2024	288.65	0.40
03/04/2024	1881.14	0.20
04/04/2024	599.58	0.20
05/04/2024	3610.55	0.00
06/04/2024	3719.22	0.00
07/04/2024	674.28	0.00
08/04/2024	896.11	0.20
09/04/2024	875.47	0.00
10/04/2024	867.12	0.00
11/04/2024	342.63	0.00
12/04/2024	613.11	0.00
13/04/2024	818.27	0.00
14/04/2024	812.98	3.80
15/04/2024	834.24	4.40
16/04/2024	1639.95	0.40
17/04/2024	612.91	6.80
18/04/2024	1153.08	0.00
19/04/2024	206.7	0.00
20/04/2024	3842.66	1.40
21/04/2024	3564.53	0.00
22/04/2024	1200.52	0.60
23/04/2024	643.22	0.00
24/04/2024	381.07	0.20
25/04/2024	4.64	0.00
26/04/2024	810.75	0.00
27/04/2024	754.56	0.00
28/04/2024	0	0.00
29/04/2024	1464.91	0.00
30/04/2024	830.04	0.00

Average	1161.75kL/day	12 mm/day
Maximum	3842.66kL/day	101 mm/day

There were no exceedances of volumetric discharge limits at LDP1 in April 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	22	226
April 2024	16	242
May 2024		
June 2024		

Air Quality – Depositional Dust

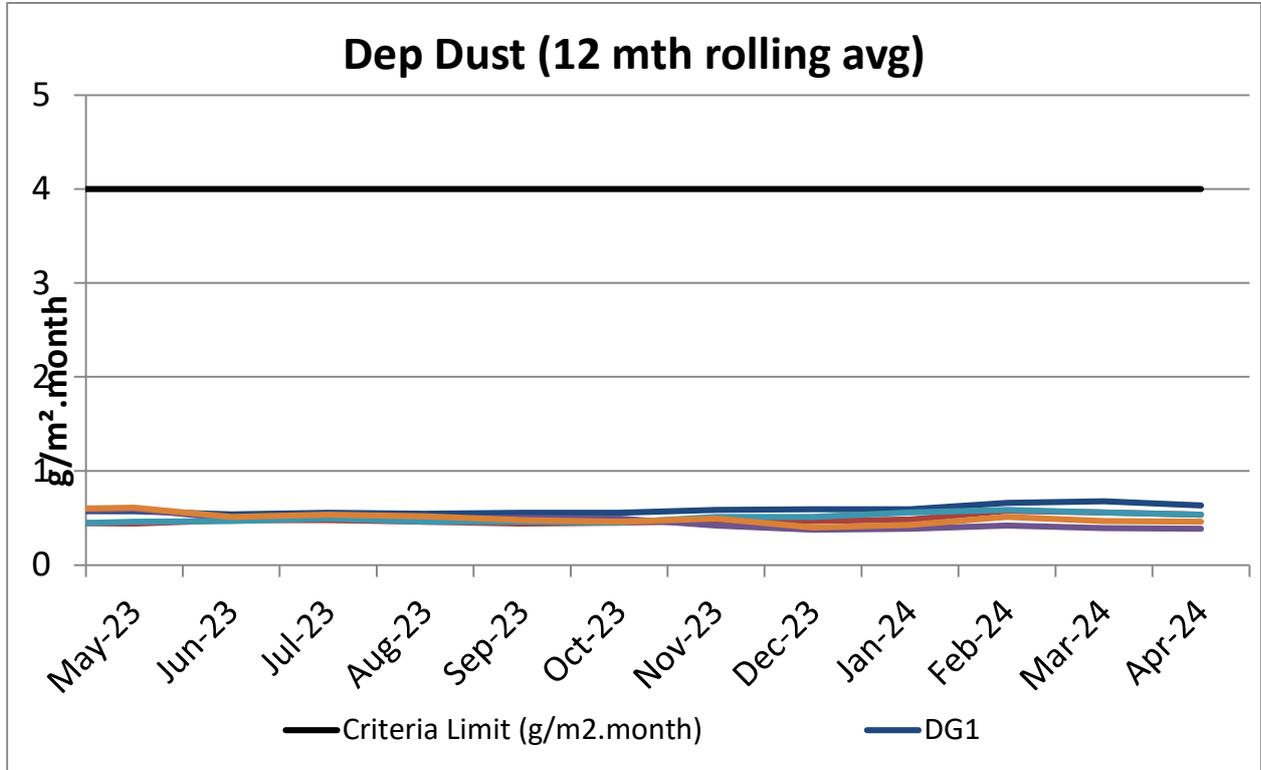
Monthly depositional dust results are shown below.

April 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	05/03/2024 – 04/04/2024	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.1
4	DG2	0.2
5	DG3	0.3
6	DG4	0.3
7	DG5	0.3
Notes:	Sampling locations provided in Delta Coal Air Quality and Greenhouse Gas Management Plan available on the Delta Coal website.	

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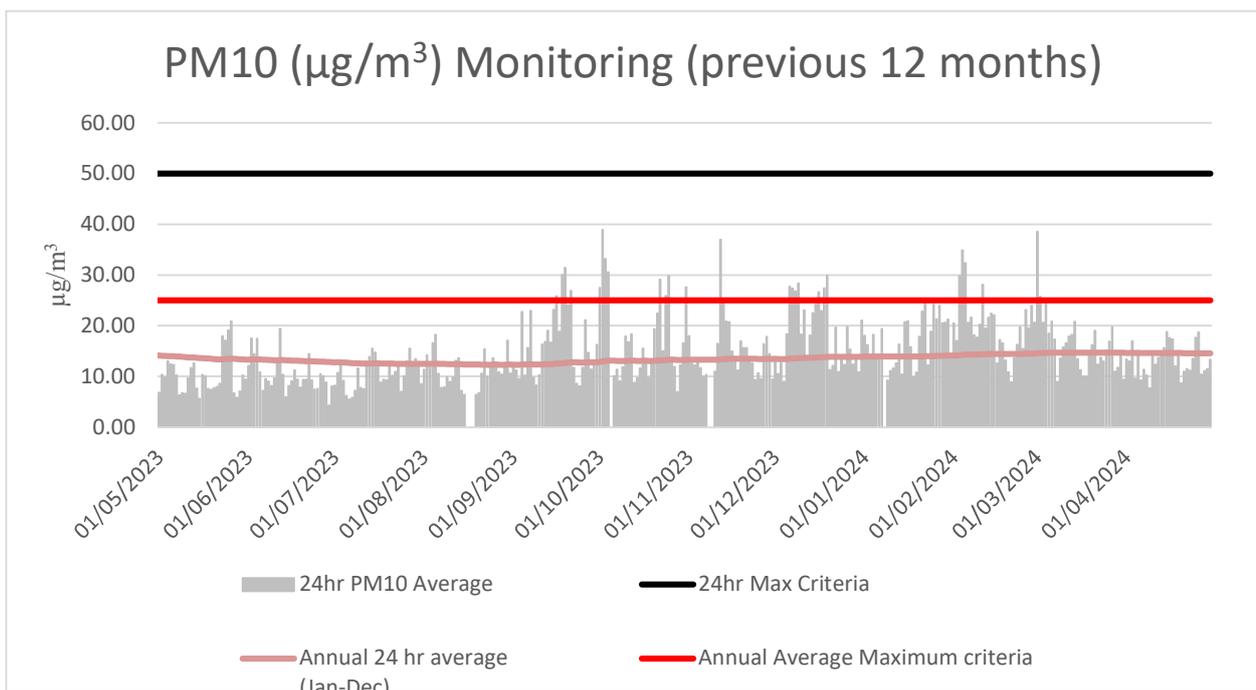
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A 12-month rolling average of depositional dust concentrations has been presented below. Manning Colliery's dust gauges are located around the perimeter of the Manning Colliery site boundary.



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 April 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 97.9% for the month of April 2024.

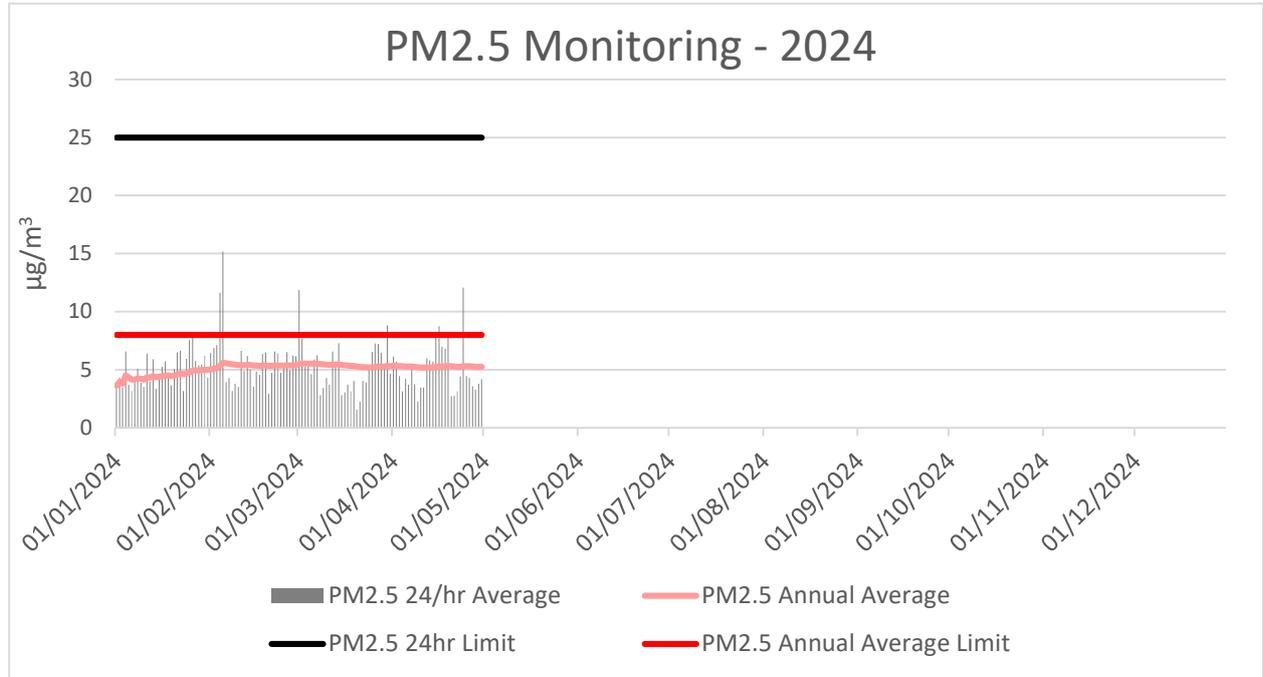
Variable	April	Total	Valid
Baro (Corrected)	99.4%	2880	2862
10m Temp	99.4%	2880	2862
2m Temp	99.4%	2880	2862
A1	99.4%	2880	2862
A1_Scaled	99.4%	2880	2862
Assumed Temp	99.4%	2880	2862
Barometric	99.4%	2880	2862
Config	99.4%	2880	2862
Daily Evap	99.4%	2880	2862
Daily Rain	99.4%	2880	2862
Delta T	99.4%	2880	2862
Dew Point	99.4%	2880	2862
Dig-In	99.4%	2880	2862
Dig-Latch	99.4%	2880	2862
ESN	99.4%	2880	2862
FDI	99.4%	2880	2862
Heat Index	99.4%	2880	2862
Humidity	99.4%	2880	2862
Mobile Signal	99.4%	2880	2862
Rain	99.4%	2880	2862
Raw Evap	99.4%	2880	2862
S Class	99.4%	2880	2862
Scalar WS	99.4%	2880	2862
Sigma	99.4%	2880	2862
Site	0.0%	2880	0
Solar Radiation	99.4%	2880	2862
Vector WD	99.4%	2880	2862
Vector WS	99.4%	2880	2862
Volts	99.4%	2880	2862
Wind Chill	99.4%	2880	2862
Wind Direction	99.4%	2880	2862
Wind Speed	99.4%	2880	2862
WS Avg	99.4%	2880	2862
WS Gust	99.4%	2880	2862

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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 April 2024. The 12-month rolling average PM_{2.5} value on 30 April was 5.2 $\mu\text{g}/\text{m}^3$. PM_{2.5} data availability in April was 100%. The 2024 year to date PM_{2.5} data availability is 100%.

Weather Data

A summary of weather data recorded by a meteorological monitoring station at the adjacent Manningering Colliery is presented below for the year to date. (EPA ID no. 26).

Monthly Weather Data 2024			
Licensee	Great Southern Energy Pty Ltd		
Location	Manningering Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	08 April 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	53.6	13.2	17.9

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Variable	April	Total	Valid
Baro (Corrected)	99.4%	2880	2862
10m Temp	99.4%	2880	2862
2m Temp	99.4%	2880	2862
A1	99.4%	2880	2862
A1_Scaled	99.4%	2880	2862
Assumed Temp	99.4%	2880	2862
Barometric	99.4%	2880	2862
Config	99.4%	2880	2862
Daily Evap	99.4%	2880	2862
Daily Rain	99.4%	2880	2862
Delta T	99.4%	2880	2862
Dew Point	99.4%	2880	2862
Dig-In	99.4%	2880	2862
Dig-Latch	99.4%	2880	2862
ESN	99.4%	2880	2862
FDI	99.4%	2880	2862
Heat Index	99.4%	2880	2862
Humidity	99.4%	2880	2862
Mobile Signal	99.4%	2880	2862
Rain	99.4%	2880	2862
Raw Evap	99.4%	2880	2862
S Class	99.4%	2880	2862
Scalar WS	99.4%	2880	2862
Sigma	99.4%	2880	2862
Site	0.0%	2880	0
Solar Radiation	99.4%	2880	2862
Vector WD	99.4%	2880	2862
Vector WS	99.4%	2880	2862
Volts	99.4%	2880	2862
Wind Chill	99.4%	2880	2862
Wind Direction	99.4%	2880	2862
Wind Speed	99.4%	2880	2862
WS Avg	99.4%	2880	2862
WS Gust	99.4%	2880	2862