Mannering Colliery Monthly Website Report – March 2025

Site:	**Mannering Colliery**
Department:	**Health Safety and Environment**
Report Title:	**Monthly Environmental Report – March 2025**
Report Date:	**11th April 2025**
Distribution:	**Delta Coal website**

Monthly Website Report

Mannering Colliery Monthly Environmental Report – March 2025

Table of Contents

Monthly Website Report

Mannering Colliery Monthly Environmental Report – March 2025

Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of March 2025.

Introduction

Great Southern Energy Pty Ltd (trading as Delta Coal) operates Mannering Colliery, an underground coal mine at the southern end of Lake Macquarie.

Mannering 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 Mannering Colliery EPL 191 are provided below.

Mannering Colliery Information	
Premises name	Mannering 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 Mannering Colliery and maintain a transparent and accountable reporting system.

Monthly Website Report

Mannering Colliery Monthly Environmental Report – March 2025

Scope

This report presents the results from the various environmental monitoring programs undertaken for Mannering 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_{10}
- Air Quality – $PM_{2.5}$; and
- Meteorological data.

Definitions

g/m^2/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: 9 April 2025)

ALS - Dust Deposition Report **March 2025**

ALS – MC Water Analysis Reports **March 2025**

Monitoring Results

Water – Quality

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

March 2025				
EPL	191			
Licensee	Great Southern Energy Pty Ltd			
Premises	Mannering 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)**
4/03/2025	7.94	14	<5	26700
11/03/2025	7.75	11	<5	26700
18/03/2025	7.92	<5	<5	23100
25/03/2025	7.79	5	<5	24300
Average	7.85	8.13	<5	25200

There were no exceedances of water quality criteria in March 2025 at Mannering Colliery.

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

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	LDP001
			Sampling date / time	18-Mar-2025 11:10
Compound	CAS Number	LOR	Unit	ES2507562-001
				Result
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	123
Silicon as SiO2	14464-46-1	0.1	mg/L	7.5
ED093T: Total Major Cations				
Calcium	7440-70-2	1000	µg/L	202000
Magnesium	7439-95-4	1000	µg/L	247000
Potassium	7440-09-7	1000	µg/L	34000
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	3
Lead	7439-92-1	1	µg/L	<1
Manganese	7439-96-5	1	µg/L	5
Molybdenum	7439-98-7	1	µg/L	10
Nickel	7440-02-0	1	µg/L	3
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	68
EG020T: Total Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	20
Antimony	7440-36-0	1	µg/L	<1
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	232
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	8
Lead	7439-92-1	1	µg/L	<1
Lithium	7439-93-2	1	µg/L	548
Molybdenum	7439-98-7	1	µg/L	16
Nickel	7440-02-0	1	µg/L	3
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
Zinc	7440-66-6	5	µg/L	81
Boron	7440-42-8	50	µg/L	420
Iron	7439-89-6	50	µg/L	110
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	0.29
EK067G: Total Phosphorus as P by Discrete Analyser				
Total Phosphorus as P	----	0.01	mg/L	0.03

Monthly Website Report

Mannering Colliery Monthly Environmental Report – March 2025

Water – Volume

Monthly water volumes discharged via MC's LDP1 during March 2025 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)
01/03/2025	1728.54	0
02/03/2025	1881.87	0
03/03/2025	2672.42	3.8
04/03/2025	991.42	10.6
05/03/2025	743.85	1
06/03/2025	385.75	0.2
07/03/2025	978.47	7.6
08/03/2025	1145.04	21.2
09/03/2025	1775.02	0.4
10/03/2025	1280	1.2
11/03/2025	1357.38	4.6
12/03/2025	1491.04	0.2
13/03/2025	1714.36	0
14/03/2025	1092.4	0
15/03/2025	1469.3	0
16/03/2025	1390.56	0
17/03/2025	1241.08	0
18/03/2025	966.48	0
19/03/2025	957.71	0
20/03/2025	1233.97	0
21/03/2025	1677.96	6.4
22/03/2025	1607.39	0.6
23/03/2025	1371.9	12
24/03/2025	1474.95	1
25/03/2025	1678.03	0
26/03/2025	925.48	0
27/03/2025	882.05	1.8
28/03/2025	956.73	1.2
29/03/2025	1155.9	51.8
30/03/2025	1155.83	5
31/03/2025	1766.47	6.8

Average	2672.42 kL/day	4.4 mm/day
Maximum	1327.40 kL/day	51.8 mm/day

Volumetric discharge remained below the daily limit of 4,000 kL per day.

Water – Groundwater Discharge

Groundwater discharged from underground workings to the MCs surface retention Dams has been detailed below. Mannering 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).

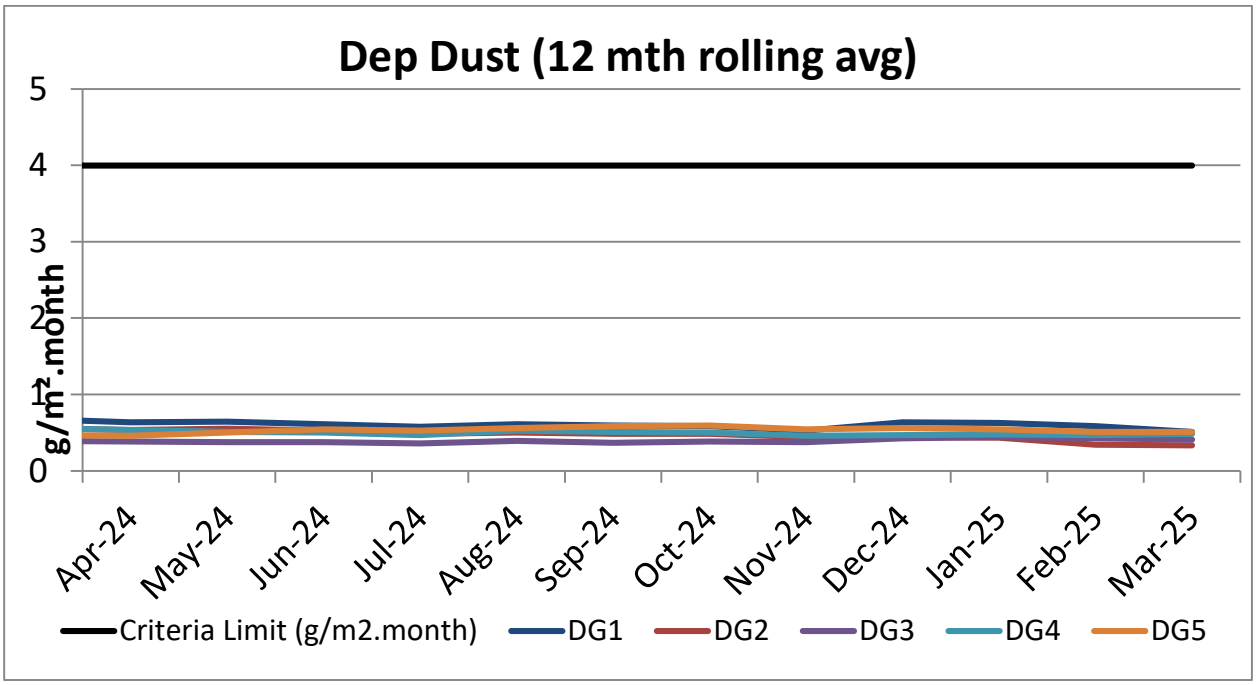
MC Groundwater Pumped to Surface Totals FY2024-2025		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative ML YTD)
July 2024	14	14
August 2024	25	39
September 2024	20	59
October 2024	26	85
November 2024	19	104
December 2024	18	122
January 2025	22	144
February 2025	19	163
March 2025	30	193

Air Quality – Depositional Dust

Monthly depositional dust results are shown below.

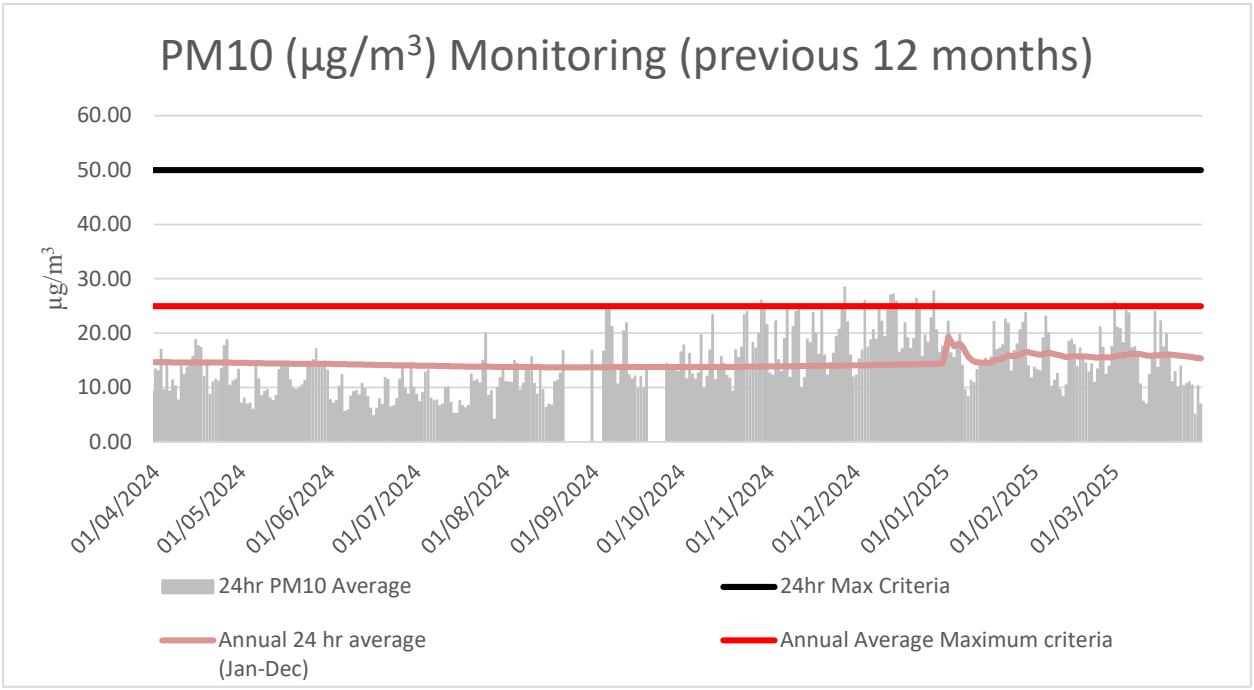
March 2025			
EPL	191		
Limits	Max. total deposited dust level		4g/m² /month
	Max. increase in deposited dust level		2g/m² /month
Sampling Date	3/02/2025 – 5/03/2025		
EPA ID no.		Site	Insoluble Matter (g/m2/month)
3		DG1	**0.1**
4		DG2	**0.3**
5		DG3	**0.2**
6		DG4	**0.3**
7		DG5	**0.2**
Notes:	Sampling locations provided in Delta Coal Air Quality and Greenhouse Gas Management Plan available on the Delta Coal website.		

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



Air Quality – PM_{10}

The 24hr PM_{10} average from Delta Coal's Tapered Element Osciliating Microbalance (TEOM), located at the Mannering Park Sewage Treatment Plant, is presented below for the previous 12 months.



Annual 24hr PM_{10} average maximum criteria for March 2025 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 100**%** for the month of March 2025.

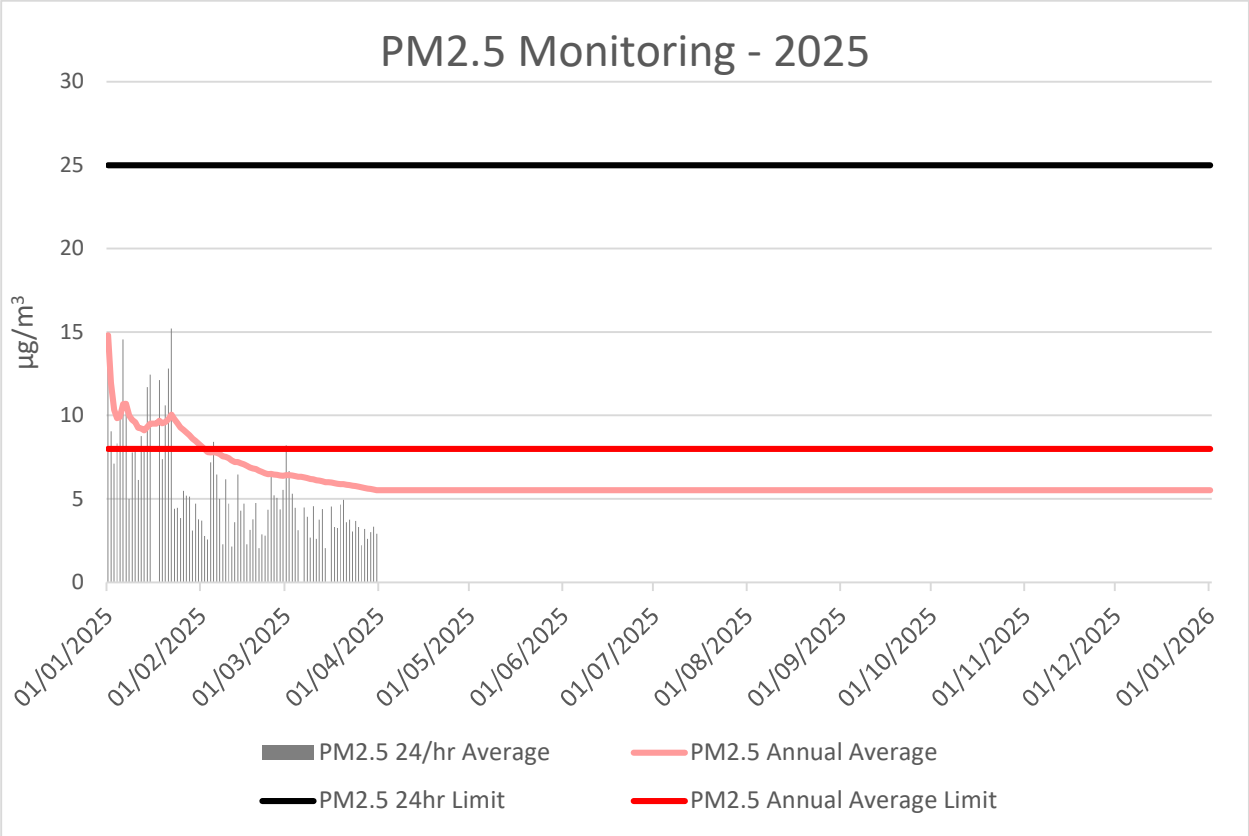
Monthly Website Report

Mannering Colliery Monthly Environmental Report – March 2025

Variable	March	Total	Valid
A/C Temp	100%	8928	8928
A1_Scaled	100%	8928	8928
Band	100%	8928	8928
Bypass Flow	100%	8928	8928
Cap Temp	100%	8928	8928
Case Temp	100%	8928	8928
Config	100%	8928	8928
Dew Point	100%	8928	8928
Dig-In	100%	8928	8928
Dig-Latch	100%	8928	8928
ESN	100%	8928	8928
Filter Freq	100%	8928	8928
Filter Load	100%	8928	8928
Humidity	100%	8928	8928
MC	100%	8928	8928
MC 12Hr	100%	8928	8928
MC 1Hr	100%	8928	8928
MC 24Hr	100%	8928	8928
MC 30min	100%	8928	8928
MC 8Hr	100%	8928	8928
MC Total	100%	8928	8928
Mobile Signal	100%	8928	8928
Noise	100%	8928	8928
PM10 Flow	100%	8928	8928
Pressure	100%	8928	8928
Site	0.0%	8928	0
Temperature	100%	8928	8928
Tube Temp	100%	8928	8928
Vac Pressure	100%	8928	8928
Volts	100%	8928	8928

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 March 2025. The 12-month rolling average $PM_{2.5}$ value on 31 March was 5.53 $\mu g/m^3$. $PM_{2.5}$ data availability in March was 84%. The 2025 year to date $PM_{2.5}$ data availability is 89.1%.

Monthly Website Report

Mannering Colliery Monthly Environmental Report – March 2025

Weather Data

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

Monthly Weather Data 2025			
Licensee	Great Southern Energy Pty Ltd		
Location	Mannering Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	10 March 2025		
Month	**Total Rainfall/Month (mm)**	**Min Temp**	**Max Temp**
Jan-24	237	11.9	41.3
Feb-24	31	12.5	33.8
Mar-25	138	15.4	36.3

Monthly Website Report

Mannering Colliery Monthly Environmental Report – March 2025

Variable	March	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