
Manning Colliery Monthly Website Report – September 2023

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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 September 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 Environment 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 - 14 April 2021

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: 14 April 2021)

ALS - Dust Deposition Report **September 2023**

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

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Monitoring Results

Water – Quality

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

September 2023				
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)
04/09/2023	7.62	8	<5	20300
14/09/2023	7.52	11	<5	24300
19/09/2023	8.01	<5	<5	16900
26/09/2023	8.09	12	<5	21500
Average	7.81	9	<5	20750

There were no exceedances of water quality criteria in September 2023 at Mannering 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-Sep-2023 08:50
Compound	CAS Number	LOR	Unit	ES2332916-001
				Result
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	131
Silicon as SiO ₂	14464-46-1	0.1	mg/L	7.2
ED093T: Total Major Cations				
Calcium	7440-70-2	1	mg/L	192
Magnesium	7439-95-4	1	mg/L	262
Potassium	7440-09-7	1	mg/L	33
EG020F: Dissolved Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	<10
Arsenic	7440-38-2	1	µg/L	9
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	10
Lead	7439-92-1	1	µg/L	<1
Manganese	7439-96-5	1	µg/L	7
Molybdenum	7439-98-7	1	µg/L	7
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	6
EG020T: Total Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	<10
Antimony	7440-36-0	1	µg/L	2
Arsenic	7440-38-2	1	µg/L	8
Beryllium	7440-41-7	1	µg/L	<1
Barium	7440-39-3	1	µg/L	227
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	468
EG020T: Total Metals by ICP-MS - Continued				
Molybdenum	7439-98-7	1	µg/L	9
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	<5
Boron	7440-42-8	50	µg/L	330
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	0.10
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 September 2023 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)
01/08/2023	659.82	0.2
02/08/2023	938.58	0.6
03/08/2023	0	0
04/08/2023	0	0.2
05/08/2023	0	0.2
06/08/2023	845.61	19
07/08/2023	860.45	0.2
08/08/2023	965.01	0
09/08/2023	1316.59	0.2
10/08/2023	1332.06	0
11/08/2023	1317.89	0
12/08/2023	1315.04	0.2
13/08/2023	1292.67	3.6
14/08/2023	1302.99	14.2
15/08/2023	993.7	0.6
16/08/2023	883.18	0.2
17/08/2023	1309.82	1.4
18/08/2023	1312.61	6
19/08/2023	1306.26	0
20/08/2023	878.24	0
21/08/2023	1284.97	0
22/08/2023	1283.63	2.4
23/08/2023	1305.15	1.2
24/08/2023	1263.64	0
25/08/2023	647.81	0
26/08/2023	1032.99	0.2
27/08/2023	518.03	0
28/08/2023	1287.64	0.2
29/08/2023	1225.97	0
30/08/2023	531.4	6.8

Average	973.72 kL/day	1.86 mm/day
Maximum	1332.06 kL/day	19 mm/day

There were no exceedances of volumetric discharge limits at LDP1 in September 2023.

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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		
November 2023		
December 2023		
January 2024		
February 2024		
March 2024		
April 2024		
May 2024		
June 2024		

Air Quality – Depositional Dust

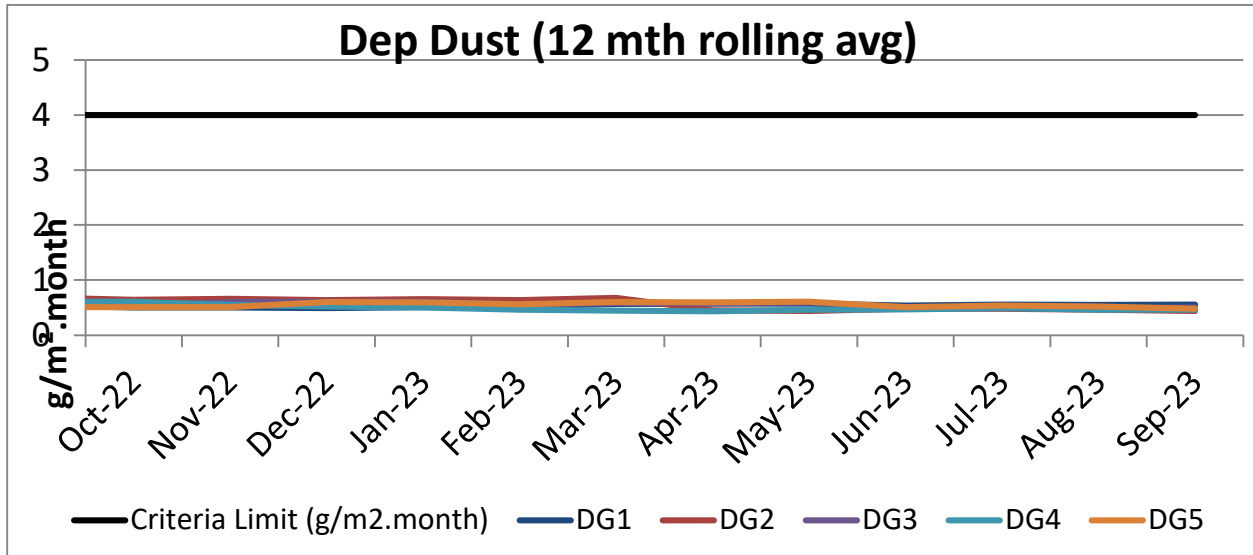
Monthly depositional dust results are shown below.

September 2023		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	04/08/2023 – 04/09/2023	
EPA ID no.	Site	Insoluble Matter (g/m2/month)
3	DG1	0.6
4	DG2	0.4
5	DG3	0.5
6	DG4	0.5
7	DG5	0.5
Notes:	Sampling locations provided in Delta Coal Air Quality and Greenhouse Gas Management Plan available on the Delta Coal website.	

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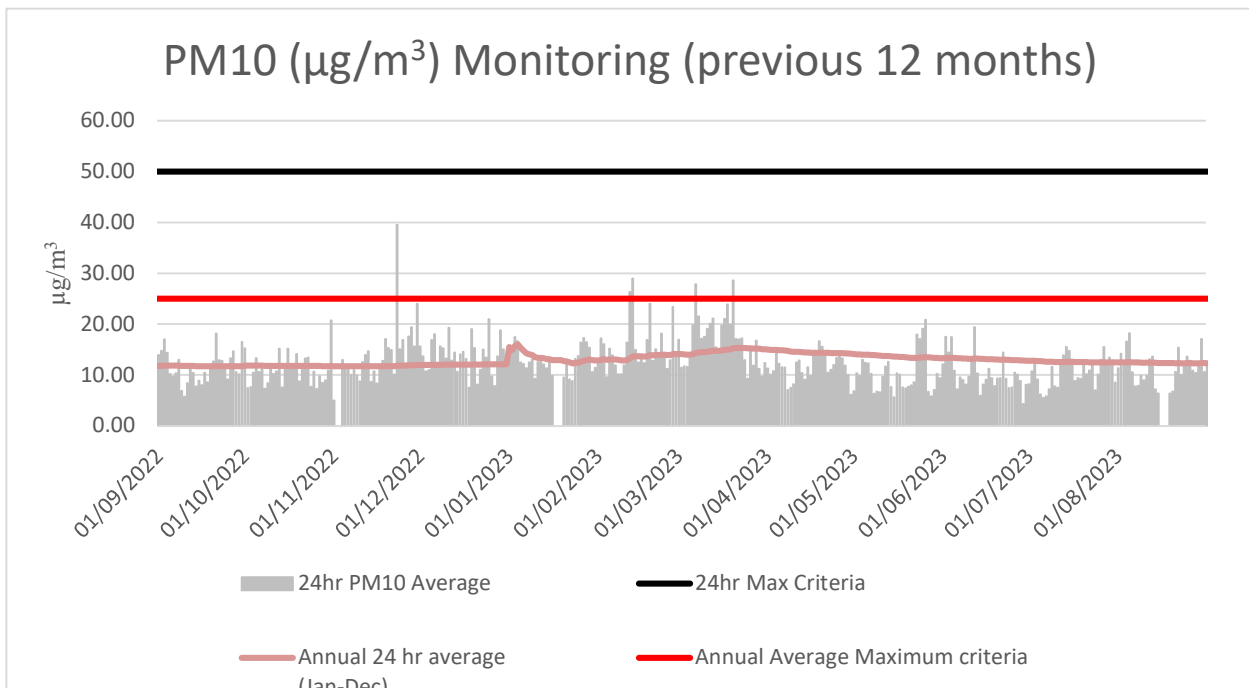
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A 12-month rolling average of depositional dust concentrations has been presented below. Manning Colliery's dust gauges are located around the perimeter of the Manning Colliery site boundary.



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.



Annual 24hr PM₁₀ average maximum criteria for September 2023 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 **97.3%** for the month of September 2023.

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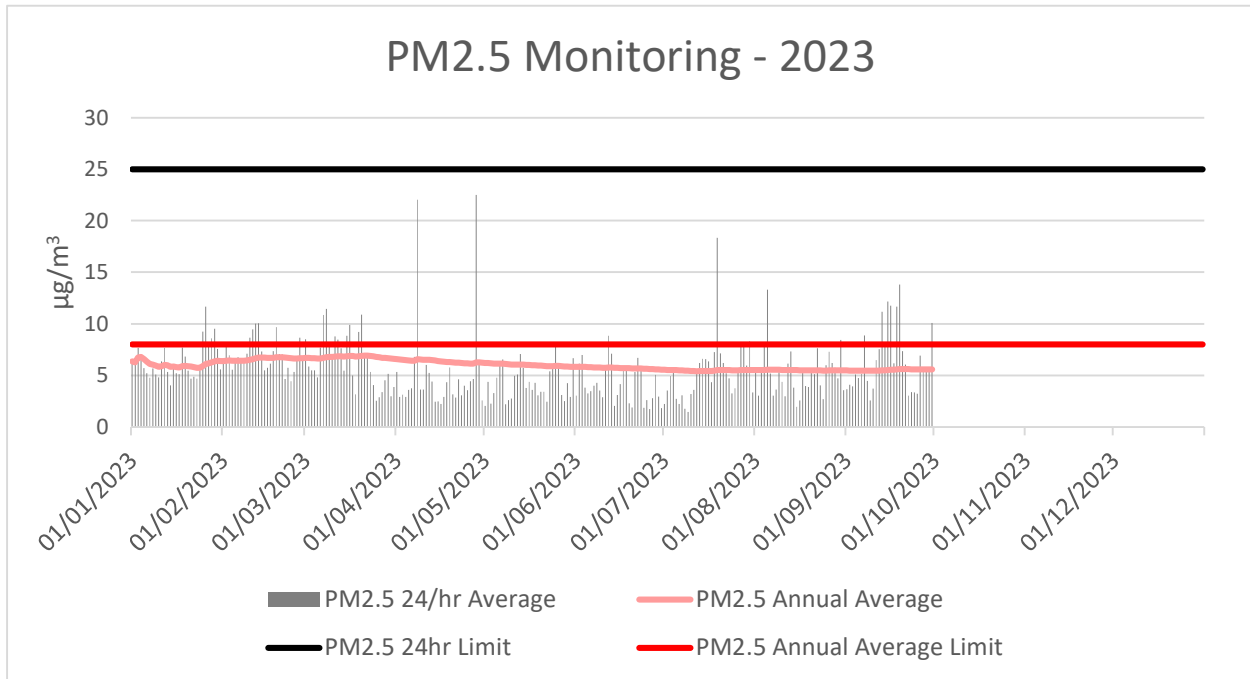
Variable	September	Total	Valid
A/C Temp	99.9%	8640	8629
A1	99.9%	8640	8629
A1_Scaled	99.9%	8640	8629
Bypass Flow	99.9%	8640	8628
Cap Temp	99.9%	8640	8629
Case Temp	99.9%	8640	8628
Config	99.9%	8640	8629
Dew Point	99.9%	8640	8629
Dig-In	99.9%	8640	8629
Dig-Latch	99.9%	8640	8629
ESN	99.9%	8640	8629
Filter Freq	99.9%	8640	8629
Filter Load	99.9%	8640	8629
Humidity	99.9%	8640	8629
MC	99.9%	8640	8629
MC 12Hr	99.9%	8640	8629
MC 1Hr	99.9%	8640	8629
MC 24Hr	99.9%	8640	8629
MC 30min	99.9%	8640	8629
MC 8Hr	99.9%	8640	8629
MC Total	99.9%	8640	8629
Mobile Signal	99.9%	8640	8629
Noise	99.9%	8640	8629
PM10 Flow	99.9%	8640	8628
Pressure	99.9%	8640	8629
Site	0.0%	8640	0
Temperature	99.9%	8640	8629
Tube Temp	99.9%	8640	8628
Vac Pressure	99.9%	8640	8629
Volts	99.9%	8640	8629

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Air Quality – PM_{2.5}

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 September 2023. The 12-month rolling average PM_{2.5} value on 30 September 2023 was 5.59 µg/m³. PM_{2.5} data availability in September 2023 was 99%. The 2023 year to date PM_{2.5} data availability is 98.05%.

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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 2023			
Licensee	Great Southern Energy Pty Ltd		
Location	Manning Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	12 September 2023		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-23	112	14.4	31.7
Feb-23	91	12.6	33.2
Mar-23	116	9.4	38.7
Apr-23	96	6.8	26.7
May-23	59.2	2.8	23.9
Jun-23	8.4	1.6	24.7
July-23	40.2	1.9	25.4
Aug -23	57.8	4.2	27.1
Sept-23	13.4	2.4	34.5

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Variable	September	Total	Valid
Baro (Corrected)	99.8%	2880	2875
10m Temp	99.8%	2880	2875
2m Temp	99.8%	2880	2875
A1	99.8%	2880	2875
A1_Scaled	99.8%	2880	2875
Assumed Temp	99.8%	2880	2875
Barometric	99.8%	2880	2875
Config	99.8%	2880	2875
Daily Evap	99.8%	2880	2875
Daily Rain	99.8%	2880	2875
Delta T	99.8%	2880	2875
Dew Point	99.8%	2880	2875
Dig-In	99.8%	2880	2875
Dig-Latch	99.8%	2880	2875
ESN	99.8%	2880	2875
FDI	99.8%	2880	2875
Heat Index	99.8%	2880	2875
Humidity	99.8%	2880	2875
Mobile Signal	99.8%	2880	2875
Rain	99.8%	2880	2875
Raw Evap	99.8%	2880	2875
S Class	99.8%	2880	2875
Scalar WS	99.8%	2880	2875
Sigma	99.8%	2880	2875
Site	0.0%	2880	0
Solar Radiation	99.8%	2880	2875
Vector WD	99.8%	2880	2875
Vector WS	99.8%	2880	2875
Volts	99.8%	2880	2875
Wind Chill	99.8%	2880	2875
Wind Direction	99.8%	2880	2875
Wind Speed	99.8%	2880	2875
WS Avg	99.8%	2880	2875
WS Gust	99.8%	2880	2875