
Manning Colliery Monthly Website Report – August 2022

Site:	Manning Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Report – August 2022
Prepared by:	Lachlan McWha
Report Date:	9 September 2022
Distribution:	Delta Coal website

Table of Contents

Summary	3
Introduction	3
Scope	4
Definitions	4
References	4
Monitoring Results	5
Water – Quality	5
Water – Volume	7
Water – Groundwater Discharge.....	8
Air Quality	8
Air Quality – Depositional Dust	9
Air Quality – PM ₁₀	9
Air Quality – PM _{2.5}	11
Weather Data	11

Monthly Website Report

Manning Colliery Monthly Environmental Report – August 2022

Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of August 2022.

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 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.

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 06_0311 (as modified)

Environment Protection Licence 191 (Licence version date: 14 April 2021)

ALS - Dust Deposition Report **August 2022**

ALS – MC Water Analysis Reports **August 2022**

Monthly Website Report

Manning Colliery Monthly Environmental Report – August 2022

Monitoring Results

Water – Quality

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

August 2022				
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)
02/08/2022	7.71	18	<5	23,100
08/08/2022	8.14	12	<5	29,000
17/08/2022	7.77	10	<5	28,300
25/07/2022	8.26	30	<5	7,290
Average	7.97	17.5	<5	21,923

There were no exceedances of water quality criteria in August 2022. Monthly water quality results, primarily metals and metalloids, at LDP001 are presented below for the period.

Monthly Website Report

Manning Colliery Monthly Environmental Report – August 2022

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID		LDP001
		Sampling date / time		17-Aug-2022 12:30
Compound	CAS Number	LOR	Unit	ES2229362-001
				Result
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	150
Silicon as SiO2	14464-46-1	0.1	mg/L	14.5
ED093T: Total Major Cations				
Calcium	7440-70-2	1	mg/L	306
Magnesium	7439-95-4	1	mg/L	303
Sodium	7440-23-5	1	mg/L	5720
EG020F: Dissolved Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	<10
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
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	60
Molybdenum	7439-98-7	1	µg/L	4
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	<5
EG020T: Total Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	<10
Antimony	7440-36-0	1	µg/L	<1
Arsenic	7440-38-2	1	µg/L	<1
Beryllium	7440-41-7	1	µg/L	<1
Barium	7440-39-3	1	µg/L	209
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	2
Lead	7439-92-1	1	µg/L	<1
Lithium	7439-93-2	1	µg/L	658
EG020T: Total Metals by ICP-MS - Continued				
Molybdenum	7439-98-7	1	µg/L	5
Nickel	7440-02-0	1	µg/L	4
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	420
Iron	7439-89-6	50	µg/L	130
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	1.18
EK067G: Total Phosphorus as P by Discrete Analyser				
Total Phosphorus as P	----	0.01	mg/L	<0.05

Monthly Website Report

Manning Colliery Monthly Environmental Report – August 2022

Water – Volume

Monthly water volumes discharged via LDP001 at Manning Colliery are summarised below.

August 2022		
EPL	191	
Licensee	Great Southern Energy Pty Ltd	
Premises	Manning 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)
01/08/2022	973.91	0.2
02/08/2022	991.68	0.4
03/08/2022	831.59	0
04/08/2022	1075.17	3.8
05/08/2022	930.82	0.2
06/08/2022	607.05	0
07/08/2022	694.15	0
08/08/2022	882.73	0
09/08/2022	882.44	0.2
10/08/2022	633.34	0.2
11/08/2022	670.79	0
12/08/2022	688.13	10.4
13/08/2022	896.32	2.2
14/08/2022	929.98	0
15/08/2022	785.35	0
16/08/2022	1168.97	0
17/08/2022	631.05	0
18/08/2022	1158.79	0
19/08/2022	902.57	0.2
20/08/2022	834.8	0
21/08/2022	651.94	0
22/08/2022	678.43	0
23/08/2022	0	20.6
24/08/2022	470.73	0.6
25/08/2022	961.91	0
26/08/2022	977.81	2.6
27/08/2022	254.24	0.2
28/08/2022	347.32	0.2
29/08/2022	917.91	0.2
30/08/2022	1095.26	0
31/08/2022	1855.79	1.8
Average	819 kL/day	1.4 mm

There were no exceedances of volumetric discharge limits at LDP1 in August 2022.

Monthly Website Report

Manning Colliery Monthly Environmental Report – August 2022

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)	Groundwater Discharge (ML)	Groundwater Discharge (Total ML Water Year to Date)
Jul-22	23.88	23.88
Aug-22	21.7	45.58
Sep-22		
Oct-22		
Nov-22		
Dec-22		
Jan-23		
Feb-23		
Mar-23		
Apr-23		
May-23		
Jun-23		

Air Quality

Monthly depositional dust results are shown below. There were no exceedances of depositional dust limits in August 2022.

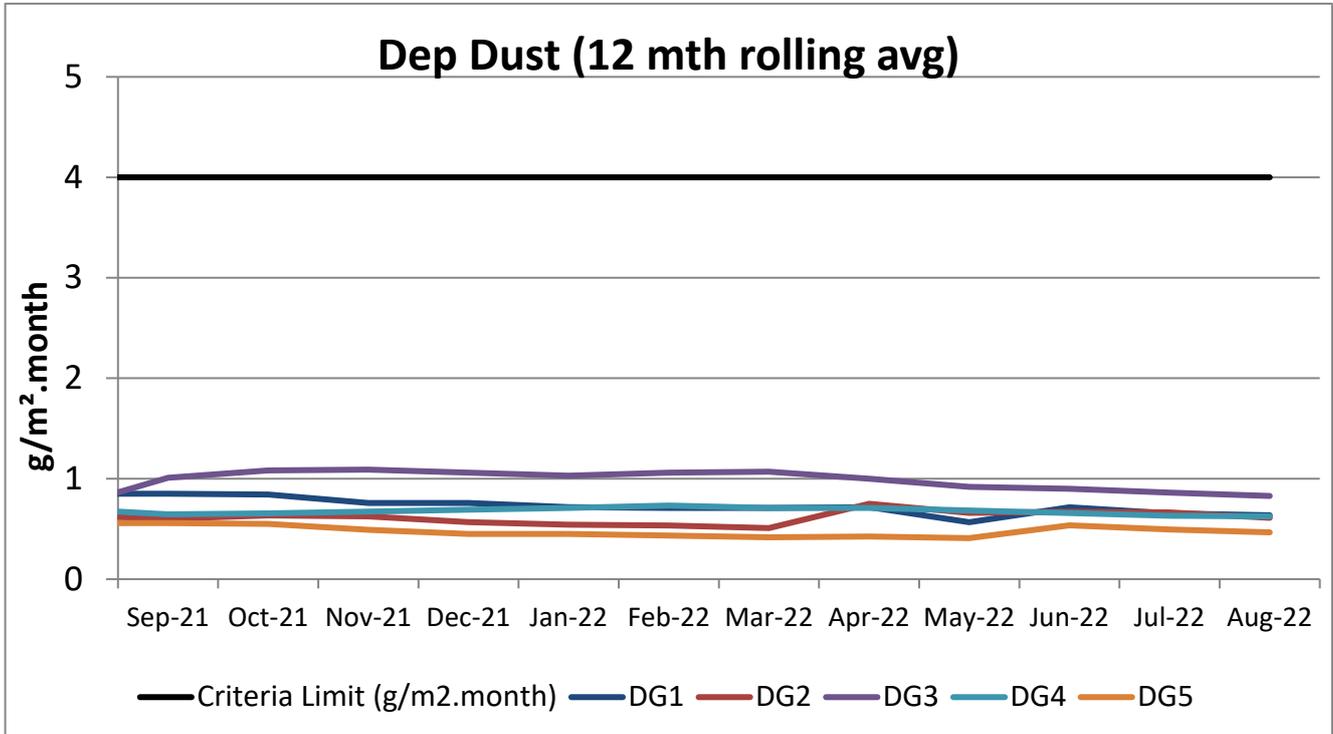
August 2022		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	07/07/2022 to 04/08/2022	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.3
4	DG2	0.4
5	DG3	0.3
6	DG4	0.5
7	DG5	0.5
Notes:	Sampling locations provided in Manning Colliery Air Quality Management Plan available on the Delta Coal website.	

Monthly Website Report

Manning Colliery Monthly Environmental Report – August 2022

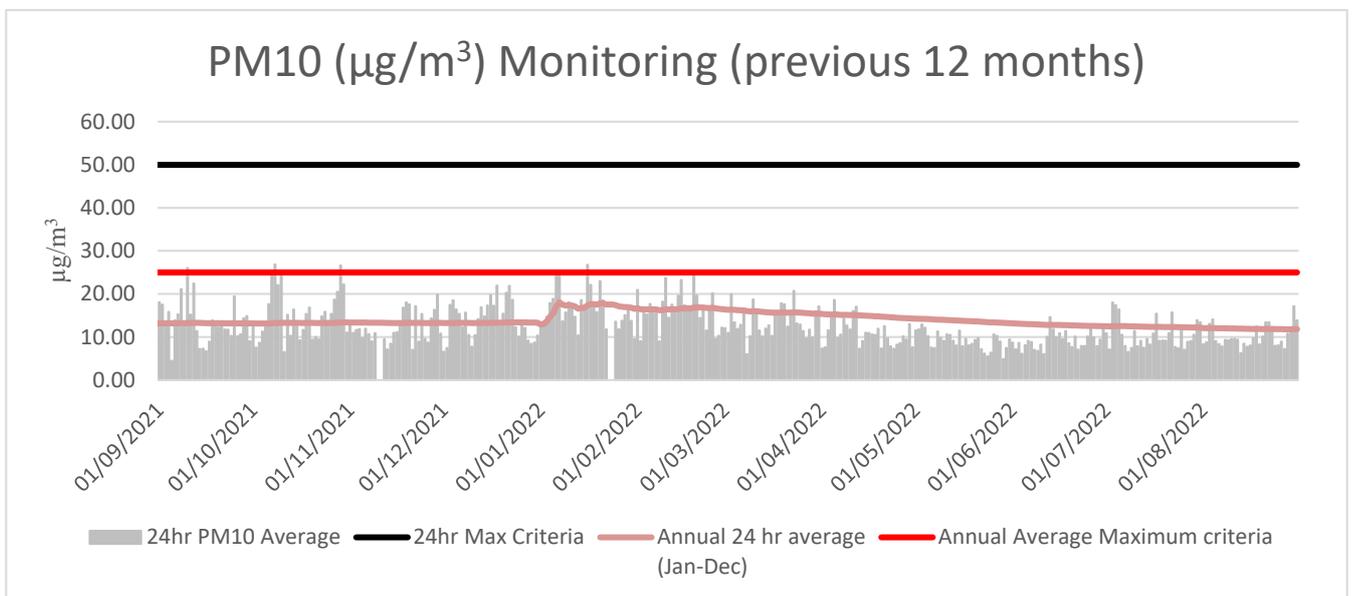
Air Quality – Depositional Dust

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 year to date.



Monthly Website Report

Manning Colliery Monthly Environmental Report – August 2022

Annual 24hr PM₁₀ average maximum criteria for August 2022 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 August 2022.

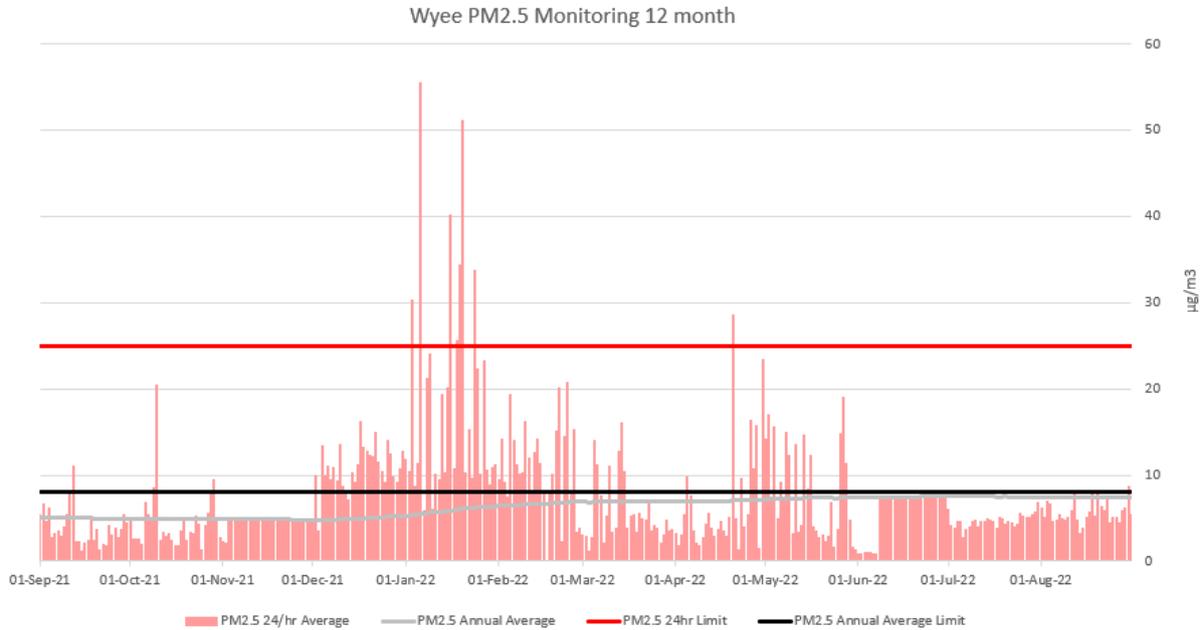
Variable	August Total	Valid
A/C Temp	100%	8928 8928
A1	100%	8928 8928
A1_Scaled	100%	8928 8928
Bypass Flow	100%	8928 8928
Cap Temp	100%	8928 8928
Case Temp	100%	8928 8928
Config	100%	8928 8928
Dew Point	100%	8928 8928
Dig-In	100%	8928 8928
Dig-Latch	0.0%	8928 0
ESN	100%	8928 8928
Filter Freq	100%	8928 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

Monthly Website Report

Manningering Colliery Monthly Environmental Report – August 2022

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 2022. The 12 month rolling average PM_{2.5} value on 31 August 2022 was 7.49 µg/m³. PM_{2.5} data availability for August 2022 was 100%. The 2022 year to date PM_{2.5} data availability was 98%.

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 2022			
Licensee	Great Southern Energy Pty Ltd		
Location	Manningering Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	09 September 2022		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-22	110.6	15.4	30.5
Feb-22	187.2	14.1	34
Mar-22	398.4	13.1	29
Apr-22	174.4	9.8	28.3
May-22	132.4	5.3	26.1
Jun-22	24.8	3	21.5
Jul-22	356.8	2.8	21.4
Aug-22	44.0	3.9	23.6

Monthly Website Report

Manning Colliery Monthly Environmental Report – August 2022

Variable	August	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	0.0%	2976	0
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