
Mannering Colliery Monthly Website Report – July 2022

Site:	Mannering Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Report – July 2022
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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of July 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	https://www.deltacoal.com.au/ArticleDocuments/10302/EPL%20191%20-%20April%202021.pdf.aspx

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 **July 2022**

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

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Monitoring Results

Water – Quality

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

July 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)
07/07/2022	7.74	166	<5	302
13/07/2022	7.99	11	<5	3510
20/07/2022	7.79	8	<5	25800
25/07/2022	7.89	<5	<5	9770

Average	7.85	47.5	<5	9,845
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* = where analytical result is less than the limit of reporting, half of the limit of reporting is adopted for the purpose of determining averages.

A significant rainfall event occurring from the 2rd to the 6th of July 2022 (279 mm) contributed to an exceedance of total suspended solids concentrations within discharge water on 7 July 2022. The non-compliance was investigated and reported to the NSW Department of Planning and Environment, NSW Environmental Protection Authority and NSW Resources Regulator. Corrective actions were identified and implemented through an incident investigation process.

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

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID		LDP001
		Sampling date / time		20-Jul-2022 12:20
Compound	CAS Number	LOR	Unit	ES2225586-001 Result
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	143
Silicon as SiO2	14464-46-1	0.1	mg/L	14.0
ED093T: Total Major Cations				
Calcium	7440-70-2	1000	µg/L	236000
Magnesium	7439-95-4	1000	µg/L	278000
Sodium	7440-23-5	1000	µg/L	5200000
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	64
Molybdenum	7439-98-7	1	µg/L	5
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	50
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	207
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	612
EG020T: Total Metals by ICP-MS - Continued				
Molybdenum	7439-98-7	1	µg/L	5
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	390
Iron	7439-89-6	50	µg/L	80
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	1.17
EK067G: Total Phosphorus as P by Discrete Analyser				
Total Phosphorus as P	----	0.01	mg/L	<0.05

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Water – Volume

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

July 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)
01/07/2022	111	1
02/07/2022	2049.23	23
03/07/2022	2748.18	57
04/07/2022	2495.88	37
05/07/2022	4248.53	89
06/07/2022	4787.78	73
07/07/2022	2411.93	8
08/07/2022	1858.74	0
09/07/2022	1138.99	0
10/07/2022	1807.61	24
11/07/2022	925.55	2
12/07/2022	887.95	0
13/07/2022	815.94	7
14/07/2022	2687.7	16
15/07/2022	351.65	0
16/07/2022	1371.52	0
17/07/2022	1482.74	0
18/07/2022	1225.22	0
19/07/2022	347.6	13
20/07/2022	1502.17	1
21/07/2022	918.61	3
22/07/2022	312.24	2
23/07/2022	709.79	1
24/07/2022	1138.42	0
25/07/2022	1141.49	0
26/07/2022	764.45	1
27/07/2022	1063.02	0
28/07/2022	1020.85	0
29/07/2022	1228.69	0
30/07/2022	1290.51	0
31/07/2022	111	0
Average	1488 kL/day	12 mm

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Due to a high intensity rainfall event between the 2nd and 6th July (279 mm) there was an exceedance of the daily volumetric limit on the 5th and 6th July 2022 which was reported to the NSW EPA and NSW DPE.

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		
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 July 2022.

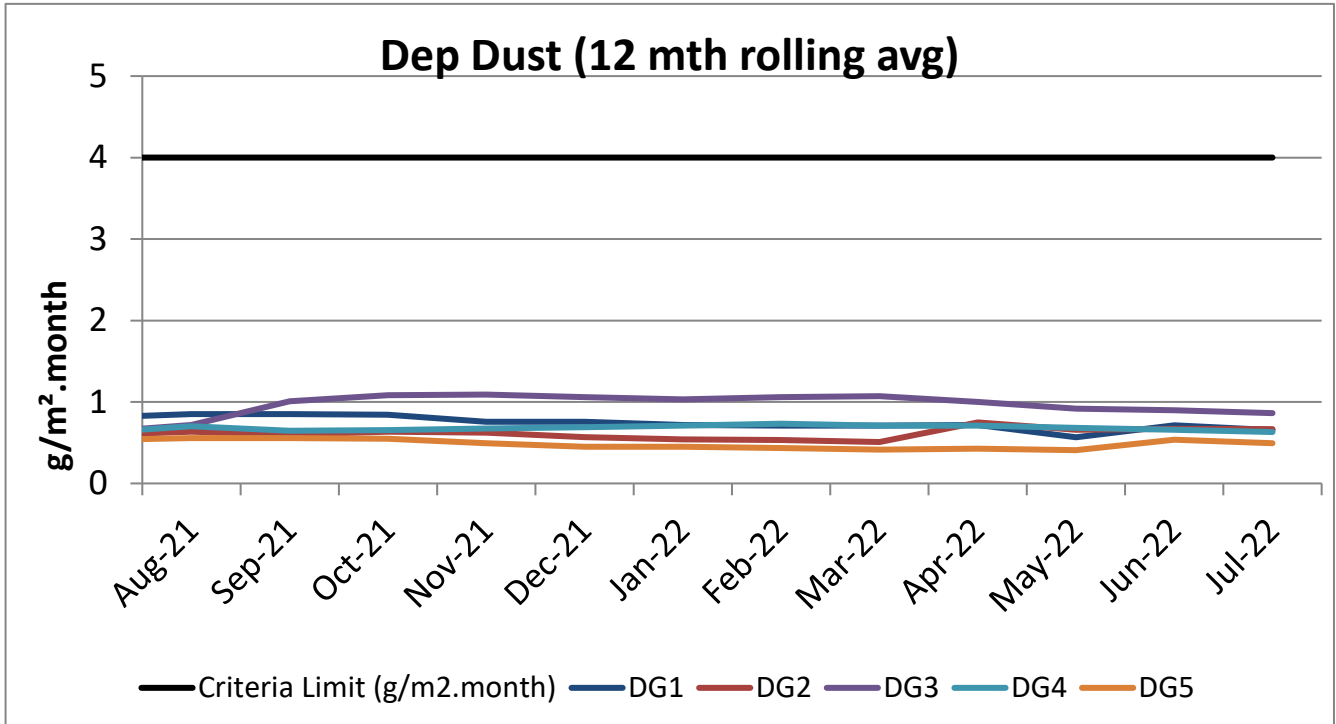
July 2022		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	06/06/2022 to 07/07/2022	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.3
4	DG2	0.6
5	DG3	0.1
6	DG4	0.3
7	DG5	0.2
Notes:	Sampling locations provided in Manning Colliery Air Quality Management Plan available on the Delta Coal website.	

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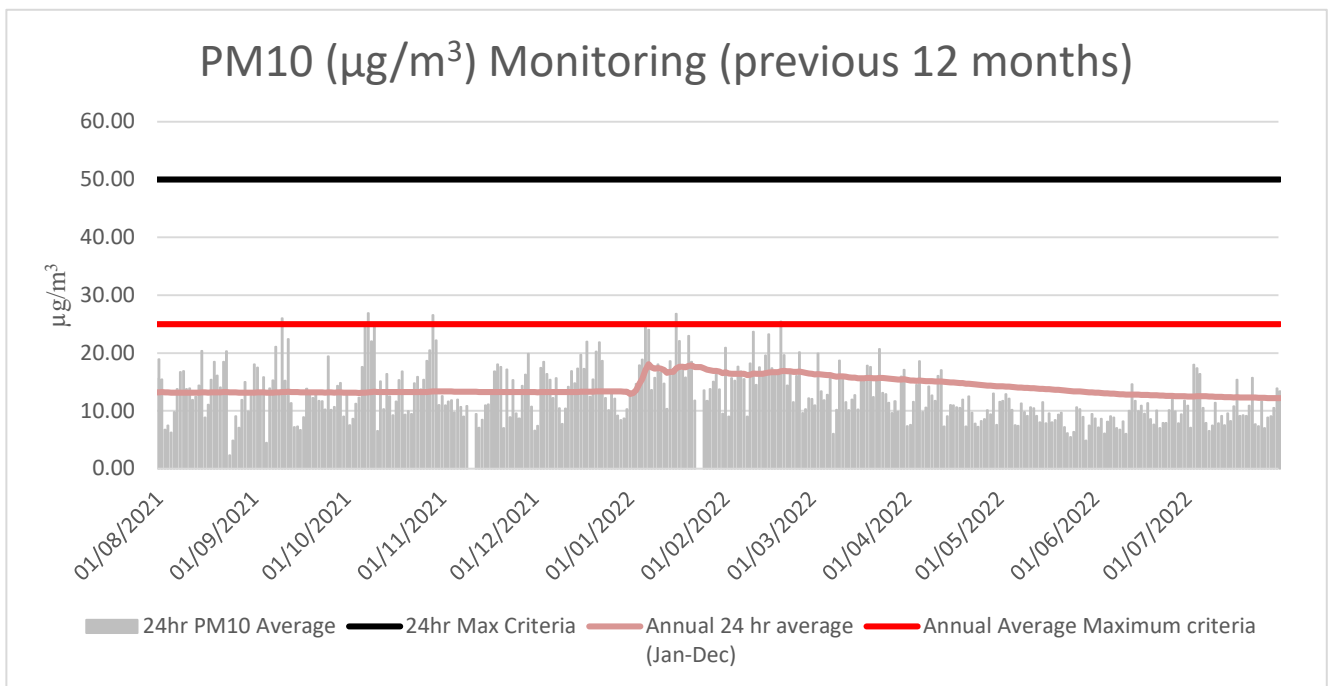
Air Quality – Depositional Dust

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.



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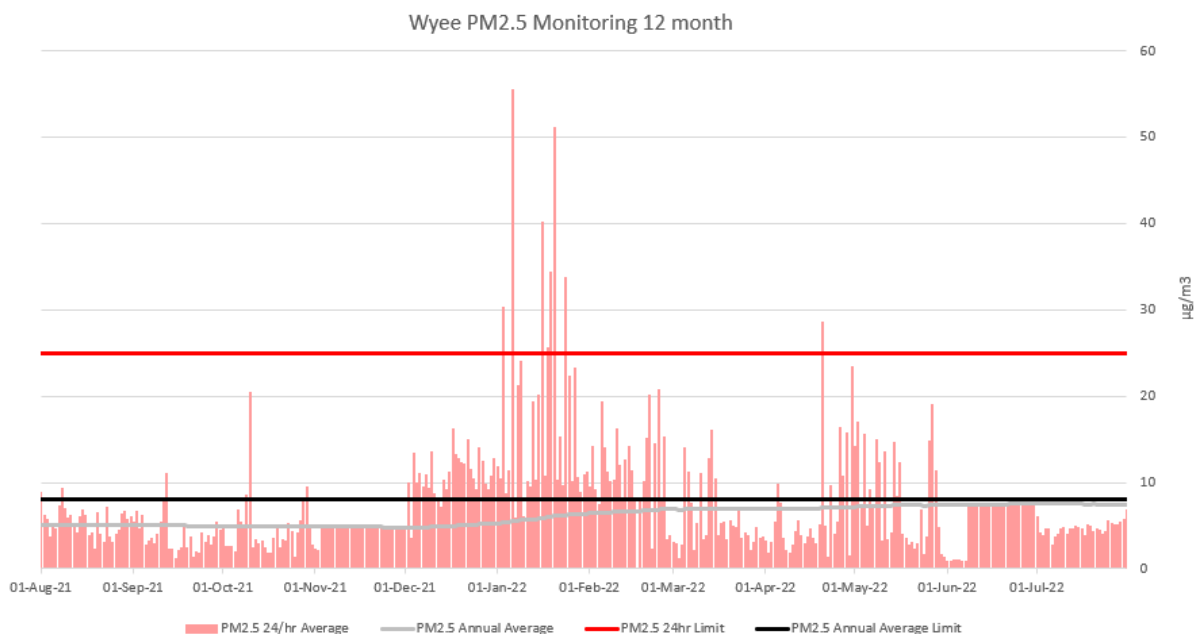
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Annual 24hr PM₁₀ average maximum criteria for July 2022 was below the annual average maximum criteria limit. A summary of data availability for Delta Coal’s TEOM is presented below for the reporting period. Delta Coals TEOM had a data availability of **100%** for the month of July 2022.

Variable	July	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

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, Wye.



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There were no exceedances of the PM_{2.5} daily average limit in July 2022. The 12 month rolling average PM_{2.5} value on 30 June 2022 was 7.48 µg/m³. PM_{2.5} data availability for July 2022 was 99%. 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	14 July 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

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Variable	July	Total	Valid
Baro (Corrected)	99.8%	2976	2969
10m Temp	99.8%	2976	2969
2m Temp	99.8%	2976	2969
A1	99.8%	2976	2969
A1_Scaled	99.8%	2976	2969
Assumed Temp	99.8%	2976	2969
Barometric	99.8%	2976	2969
Config	99.8%	2976	2969
Daily Evap	99.8%	2976	2969
Daily Rain	99.8%	2976	2969
Delta T	99.8%	2976	2969
Dew Point	99.8%	2976	2969
Dig-In	99.8%	2976	2969
Dig-Latch	0.0%	2976	0
ESN	99.8%	2976	2969
FDI	99.8%	2976	2969
Heat Index	99.8%	2976	2969
Humidity	99.8%	2976	2969
Mobile Signal	99.8%	2976	2969
Rain	99.8%	2976	2969
Raw Evap	99.8%	2976	2969
S Class	99.8%	2976	2969
Scalar WS	99.8%	2976	2969
Sigma	99.8%	2976	2969
Site	0.0%	2976	0
Solar Radiation	99.8%	2976	2969
Vector WD	99.8%	2976	2969
Vector WS	99.8%	2976	2969
Volts	99.8%	2976	2969
Wind Chill	99.8%	2976	2969
Wind Direction	99.8%	2976	2969
Wind Speed	99.8%	2976	2969
WS Avg	99.8%	2976	2969
WS Gust	99.8%	2976	2969