
Mannering Colliery Monthly Website Report – May 2022

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

Environmental monitoring results are presented in this report for monitoring undertaken during the period of May 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 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	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50781&SYSUID=1&LICID=191

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 **May 2022**

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

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Monitoring Results

Water – Quality

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

May 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)
06/05/2022	7.94	17	<5	24,600
12/05/2022	7.81	14	<5	22,400
17/05/2022	8.02	5	<5	24,200
26/05/2022	7.97	<5	<5	17,000
Average	7.94	12.4*	<5	22,050

* = where analytical result is less than the limit of reporting, the half the limit of reporting is adopted for the purpose of determining averages.

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		17-May-2022 13:00
Compound	CAS Number	LOR	Unit	ES2217012-001
				Result
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	126
Silicon as SiO2	14464-46-1	0.1	mg/L	11.0
ED093T: Total Major Cations				
Calcium	7440-70-2	1000	µg/L	230000
Magnesium	7439-95-4	1000	µg/L	241000
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	7
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	26
Molybdenum	7439-98-7	1	µg/L	6
Nickel	7440-02-0	1	µg/L	5
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	7
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	8
Beryllium	7440-41-7	1	µg/L	<1
Barium	7440-39-3	1	µg/L	288
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	587
EG020T: Total Metals by ICP-MS - Continued				
Molybdenum	7439-98-7	1	µg/L	6
Nickel	7440-02-0	1	µg/L	3
Selenium	7782-49-2	10	µg/L	<10
Silver	7440-22-4	1	µg/L	4
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	10
Boron	7440-42-8	50	µg/L	350
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	0.62
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.

May 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)	

Day	Unit	Volume
01/05/2022	kL	130.19
02/05/2022	kL	71.61
03/05/2022	kL	55.83
04/05/2022	kL	26.52
05/05/2022	kL	115.28
06/05/2022	kL	1352.9
07/05/2022	kL	1387.93
08/05/2022	kL	1443.74
09/05/2022	kL	1466.53
10/05/2022	kL	1669.58
11/05/2022	kL	1784.68
12/05/2022	kL	2086.5
14/05/2022	kL	479.15
15/05/2022	kL	1354.36
16/05/2022	kL	1293.99
17/05/2022	kL	445.07
18/05/2022	kL	1310.86
19/05/2022	kL	212.93
20/05/2022	kL	335.94
21/05/2022	kL	500.75
22/05/2022	kL	1810.76
23/05/2022	kL	2494.66
24/05/2022	kL	1571.1
25/05/2022	kL	1739.92
26/05/2022	kL	909.94
27/05/2022	kL	1277.83
28/05/2022	kL	1085.97
29/05/2022	kL	854.35
30/05/2022	kL	1319.17
31/05/2022	kL	521
Average	kL	1037 kL/day

There were no exceedances of volumetric discharge limits at Manning Colliery during the report period.

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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 FY2021-2022		
Date (month)	Groundwater Discharge (ML)	Groundwater Discharge (Total ML Water Year to Date)
July 2021	32.48	32.48
August 2021	28.77	61.25
September 2021	17.42	78.67
October 2021	9.87	88.55
November 2021	37.73	126.28
December 2021	19.25	145.53
January 2022	30.17	175.70
February 2022	20.99	196.69
March 2022	25.08	221.76
April 2022	21.38	243.14
May 2022	27.76	270.90
June 2022		

Air Quality

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

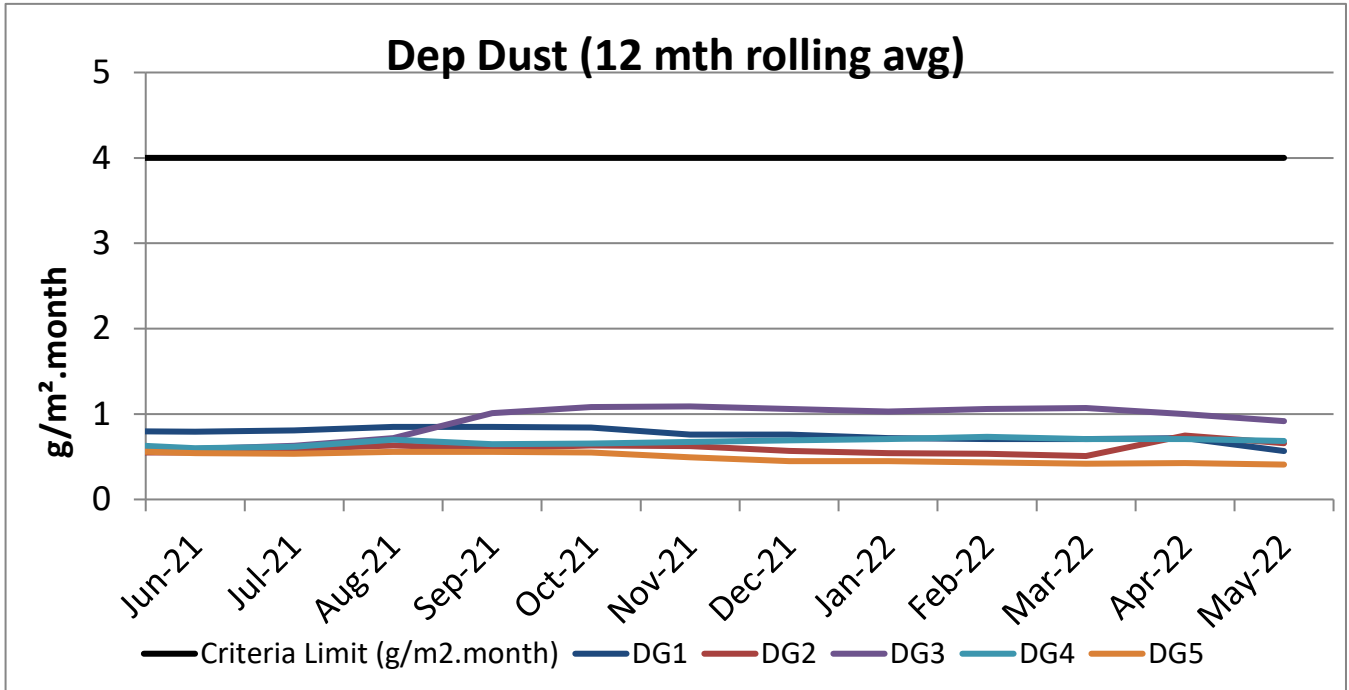
May 2022		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	07/04/2022 to 06/05/2022	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.3
4	DG2	0.2
5	DG3	0.1
6	DG4	0.1
7	DG5	0.1
Notes:	Sampling locations provided in Manning Colliery Air Quality Management Plan available on the Delta Coal website.	

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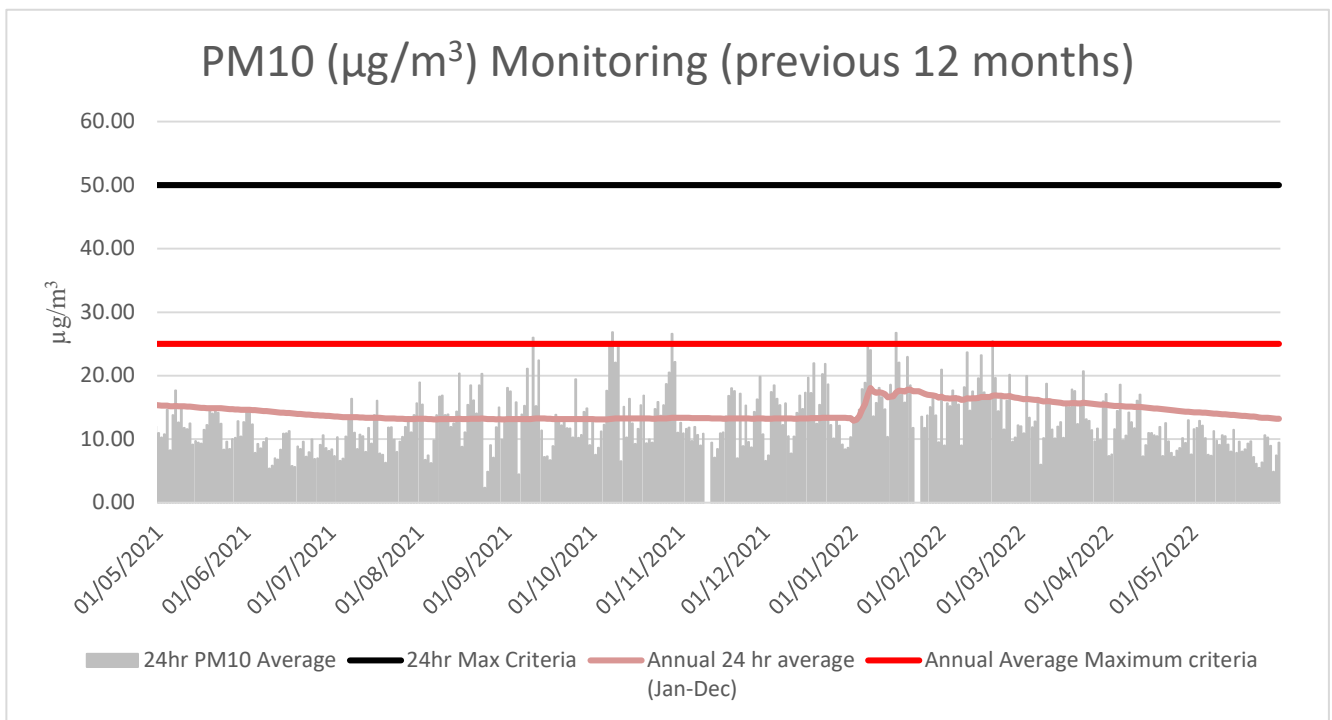
Rolling Annual Average Depositional Dust

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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Annual 24hr PM₁₀ average maximum criteria for April 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 **99.9%** for the month of May 2022.

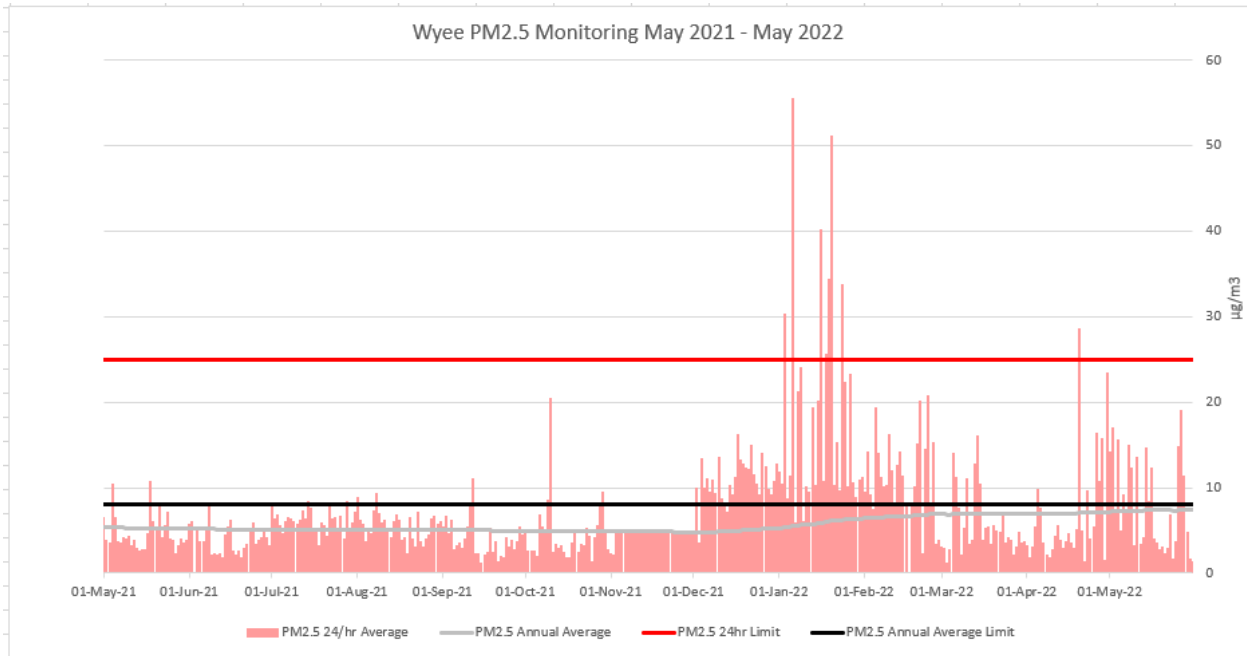
Variable	May	Total	Valid
A/C Temp	99.9%	8928	8918
A1	99.9%	8928	8918
A1_Scaled	99.9%	8928	8918
Bypass Flow	99.9%	8928	8918
Cap Temp	99.9%	8928	8918
Case Temp	99.9%	8928	8918
Config	99.9%	8928	8918
Dew Point	99.9%	8928	8918
Dig-In	99.9%	8928	8918
Dig-Latch	72.4%	8928	6468
ESN	99.9%	8928	8918
Filter Freq	99.9%	8928	8918
Filter Load	99.9%	8928	8918
Humidity	99.9%	8928	8918
MC	99.9%	8928	8918
MC 12Hr	99.9%	8928	8918
MC 1Hr	99.9%	8928	8918
MC 24Hr	99.9%	8928	8918
MC 30min	99.9%	8928	8918
MC 8Hr	99.9%	8928	8918
MC Total	99.9%	8928	8918
Mobile Signal	99.9%	8928	8918
Noise	99.9%	8928	8918
PM10 Flow	99.9%	8928	8918
Pressure	99.9%	8928	8918
Site	0.0%	8928	0
Temperature	99.9%	8928	8918
Tube Temp	99.9%	8928	8918
Vac Pressure	99.9%	8928	8918
Volts	99.9%	8928	8918

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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 May 2022. The 12 month rolling average PM_{2.5} value on 30 April 2022 was 7.4 µg/m³. PM_{2.5} data availability for May 2022 was 99.44% and 2022 year to date PM_{2.5} data availability was 99.58%.

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 2022			
Licensee	Great Southern Energy Pty Ltd		
Location	Manning Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	11 May 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

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Variable	May	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	72.8%	2976	2180
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