
Manning Colliery Monthly Website Report – June 2022

Site:	Manning Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Report – June 2022
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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of June 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 **June 2022**

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

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Monitoring Results

Water – Quality

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

June 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)
01/06/2022	7.82	<5	<5	27100
06/06/2022	8.06	<5	<5	25100
15/06/2022	7.88	7	<5	27200
21/06/2022	8.03	<5	<5	24300
29/06/2022	8.08	7	<5	24900
Average	7.97	4.3*	<5	25,720

* = where analytical result is less than the limit of reporting, half of 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	Downstream
Sampling date / time				21-Jun-2022 12:25		21-Jun-2022 11:30	
Compound	CAS Number	LOR	Unit	ES2221695-001		ES2221695-002	
				Result	Result		
ED040F: Dissolved Major Anions							
Sulfur as S	63705-05-5	1	mg/L	136	122		
Silicon as SiO2	14464-46-1	0.1	mg/L	12.4	11.3		
ED093T: Total Major Cations							
Calcium	7440-70-2	1	mg/L	208	162		
Magnesium	7439-95-4	1	mg/L	273	242		
Potassium	7440-09-7	1	mg/L	35	28		
EG020F: Dissolved Metals by ICP-MS							
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01		
Arsenic	7440-38-2	0.001	mg/L	0.006	<0.001		
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001		
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001		
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001		
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001		
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001		
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001		
Manganese	7439-96-5	0.001	mg/L	0.048	0.006		
Molybdenum	7439-98-7	0.001	mg/L	0.005	0.004		
Nickel	7440-02-0	0.001	mg/L	0.004	0.004		
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01		
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001		
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01		
Zinc	7440-66-6	0.005	mg/L	0.009	<0.005		
EG020T: Total Metals by ICP-MS							
Aluminium	7429-90-5	0.01	mg/L	0.03	0.03		
Antimony	7440-36-0	0.001	mg/L	0.003	0.002		
Arsenic	7440-38-2	0.001	mg/L	0.006	0.001		
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001		
Barium	7440-39-3	0.001	mg/L	0.278	0.214		
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001		
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001		
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001		
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001		
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001		
Lithium	7439-93-2	0.001	mg/L	0.578	0.498		

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID		LDP001	Downstream
Sampling date / time				21-Jun-2022 12:25		21-Jun-2022 11:30	
Compound	CAS Number	LOR	Unit	ES2221695-001		ES2221695-002	
				Result	Result		
EG020T: Total Metals by ICP-MS - Continued							
Molybdenum	7439-98-7	0.001	mg/L	0.006	0.005		
Nickel	7440-02-0	0.001	mg/L	0.003	0.002		
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01		
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001		
Tin	7440-31-5	0.001	mg/L	<0.001	<0.001		
Titanium	7440-32-6	0.01	mg/L	<0.01	<0.01		
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01		
Zinc	7440-66-6	0.005	mg/L	0.009	<0.005		
Boron	7440-42-8	0.05	mg/L	0.35	0.30		
Iron	7439-89-6	0.05	mg/L	<0.05	0.06		
EG035F: Dissolved Mercury by FIMS							
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001		
EG035T: Total Recoverable Mercury by FIMS							
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001		
EK055G: Ammonia as N by Discrete Analyser							
Ammonia as N	7664-41-7	0.01	mg/L	0.64	<0.10		
EK067G: Total Phosphorus as P by Discrete Analyser							
Total Phosphorus as P	----	0.01	mg/L	0.10	0.20		

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Water – Volume

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

June 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
01/06/2022	kL	886.21
02/06/2022	kL	729.34
03/06/2022	kL	338.78
04/06/2022	kL	1237.26
05/06/2022	kL	79.62
06/06/2022	kL	521.43
07/06/2022	kL	627.37
08/06/2022	kL	156.06
09/06/2022	kL	856.15
10/06/2022	kL	806.25
11/06/2022	kL	437.67
12/06/2022	kL	889.74
13/06/2022	kL	154.69
14/06/2022	kL	899.81
15/06/2022	kL	1052.75
16/06/2022	kL	544.95
17/06/2022	kL	1255.85
18/06/2022	kL	796.03
19/06/2022	kL	930.23
20/06/2022	kL	1142.32
21/06/2022	kL	524.96
22/06/2022	kL	937.28
23/06/2022	kL	807.7
24/06/2022	kL	530.83
25/06/2022	kL	1221.69
26/06/2022	kL	168.98
27/06/2022	kL	372.14
28/06/2022	kL	1075.48
29/06/2022	kL	825.23
30/06/2022	kL	966.05
Average	kL	726 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	24.22	295.12

Air Quality

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

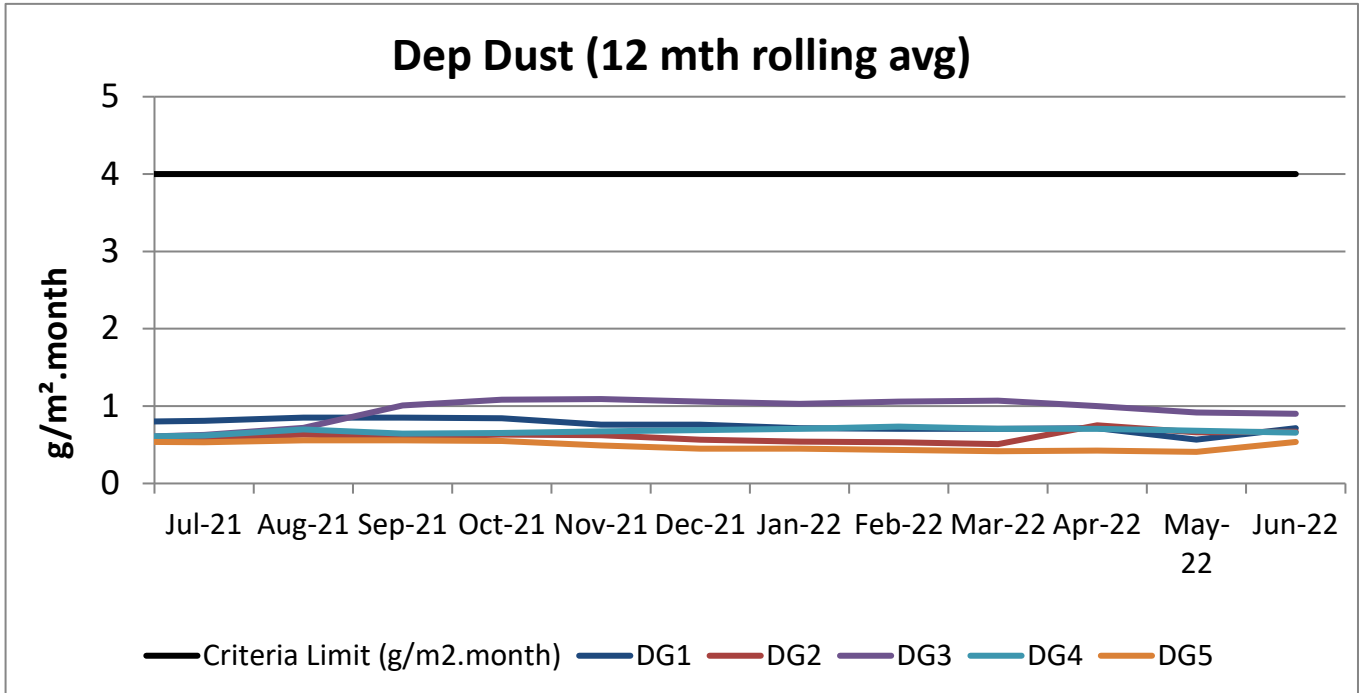
June 2022		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	06/05/2022 to 06/06/2022	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	1.1
4	DG2	0.2
5	DG3	1.4
6	DG4	0.4
7	DG5	1.3
Notes:	Sampling locations provided in Manning Colliery Air Quality Management Plan available on the Delta Coal website.	

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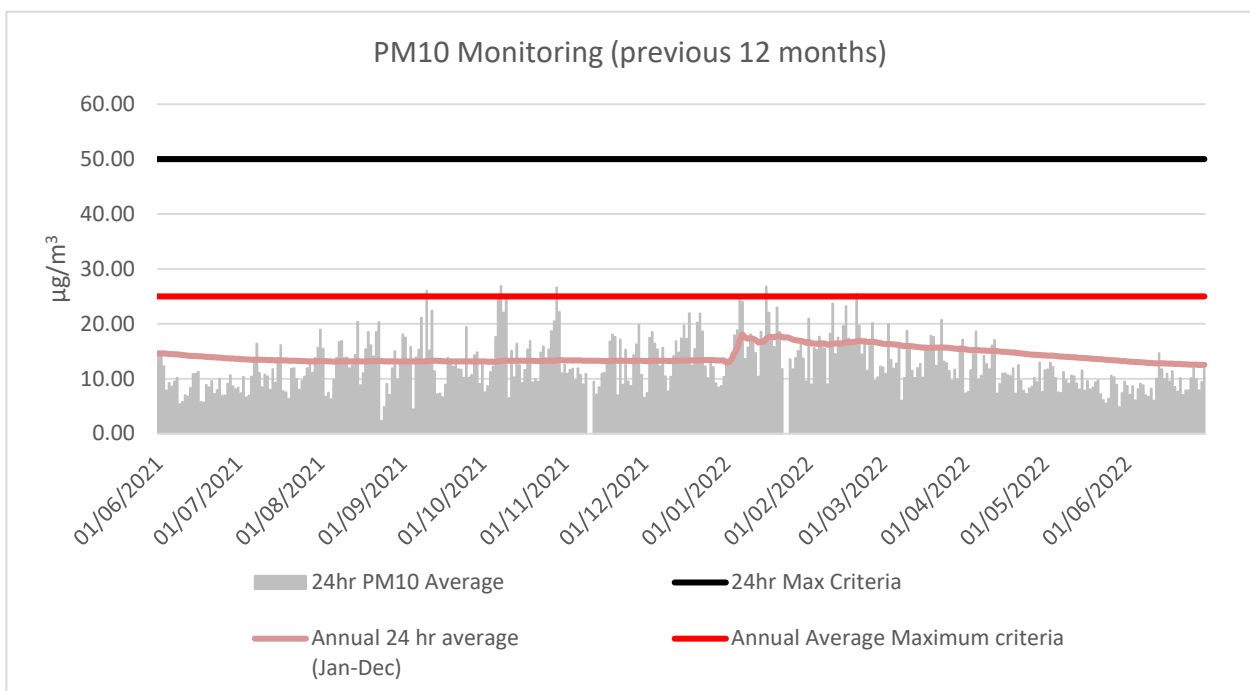
Rolling Annual Average Depositional Dust

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 – PM_{10}

The 24hr PM_{10} 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 June 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 June 2022.

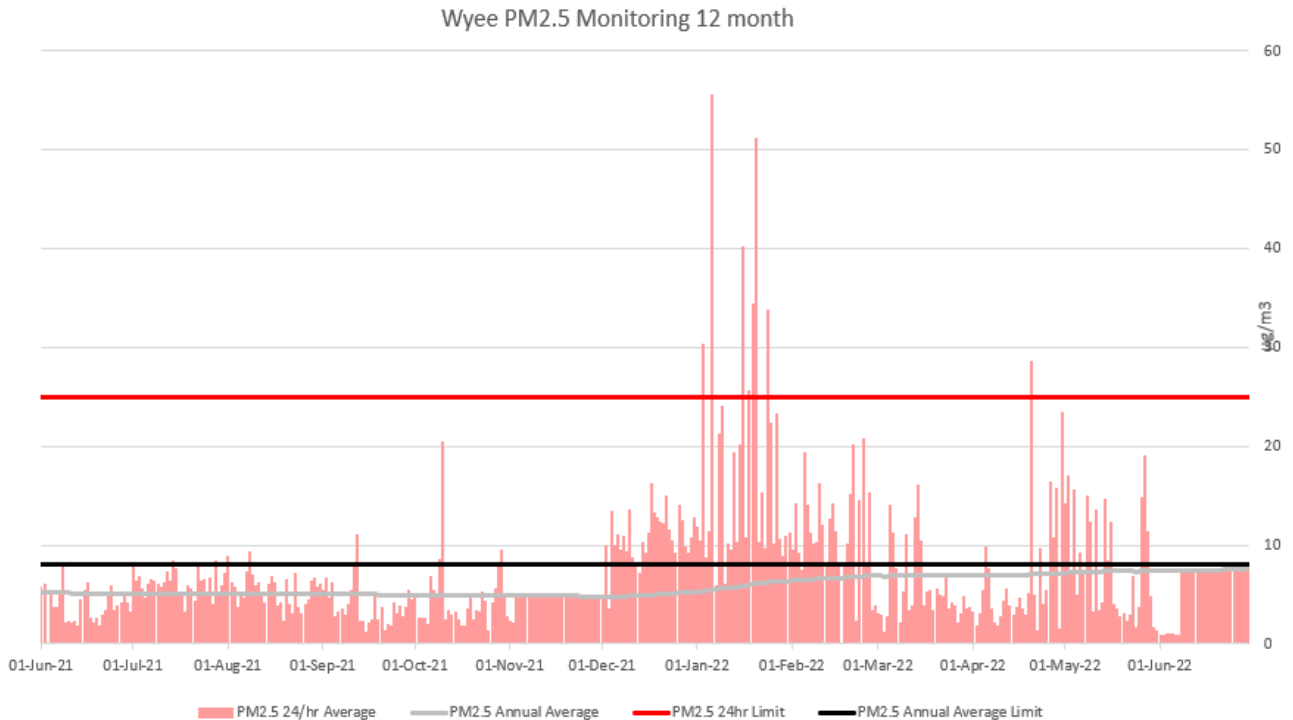
Variable	June	Total	Valid
A/C Temp	100%	8840	8839
A1	100%	8840	8839
A1_Scaled	100%	8840	8839
Bypass Flow	100%	8840	8839
Cap Temp	100%	8840	8839
Case Temp	100%	8840	8839
Config	100%	8840	8839
Dew Point	100%	8840	8839
Dig-In	100%	8840	8839
Dig-Latch	0.0%	8840	0
ESN	100%	8840	8839
Filter Freq	100%	8840	8839
Filter Load	100%	8840	8839
Humidity	100%	8840	8839
MC	100%	8840	8839
MC 12Hr	100%	8840	8839
MC 1Hr	100%	8840	8839
MC 24Hr	100%	8840	8839
MC 30min	100%	8840	8839
MC 8Hr	100%	8840	8839
MC Total	100%	8840	8839
Mobile Signal	100%	8840	8839
Noise	100%	8840	8839
PM10 Flow	100%	8840	8839
Pressure	100%	8840	8839
Site	0.0%	8840	0
Temperature	100%	8840	8839
Tube Temp	100%	8840	8839
Vac Pressure	100%	8840	8839
Volts	100%	8840	8839

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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, Wye.



There were no exceedances of the PM_{2.5} daily average limit in June 2022. The 12 month rolling average PM_{2.5} value on 30 June 2022 was 7.58 µg/m³. PM_{2.5} data availability for June 2022 was 27% due to a vandalism incident, impacting data collected between 8 and 30 June 2022 the data was substituted with the rolling annual average. The 2022 year to date PM_{2.5} data availability was 97.86%.

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	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

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Variable	June	Total	Valid
Baro (Corrected)	100%	2880	2880
10m Temp	100%	2880	2880
2m Temp	100%	2880	2880
A1	100%	2880	2880
A1_Scaled	100%	2880	2880
Assumed Temp	100%	2880	2880
Barometric	100%	2880	2880
Config	100%	2880	2880
Daily Evap	100%	2880	2880
Daily Rain	100%	2880	2880
Delta T	100%	2880	2880
Dew Point	100%	2880	2880
Dig-In	100%	2880	2880
Dig-Latch	0.0%	2880	0
ESN	100%	2880	2880
FDI	100%	2880	2880
Heat Index	100%	2880	2880
Humidity	100%	2880	2880
Mobile Signal	100%	2880	2880
Rain	100%	2880	2880
Raw Evap	100%	2880	2880
S Class	100%	2880	2880
Scalar WS	100%	2880	2880
Sigma	100%	2880	2880
Site	0.0%	2880	0
Solar Radiation	100%	2880	2880
Vector WD	100%	2880	2880
Vector WS	100%	2880	2880
Volts	100%	2880	2880
Wind Chill	100%	2880	2880
Wind Direction	100%	2880	2880
Wind Speed	100%	2880	2880
WS Avg	100%	2880	2880
WS Gust	100%	2880	2880