
Manning Colliery Monthly Website Report – November 2021

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Department:	Technical Services
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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of November 2021.

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	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 **November 2021**

ALS – MC Water Analysis Reports **November 2021**

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Monitoring Results

Water – Quality

Weekly water quality results for discharge point LDP001 are presented below. Monitoring of these parameters have reverted to weekly as per EPL PRP requirements.

November 2021				
EPL	191			
Licensee	Great Southern Energy Pty Ltd			
Premises	Manninging Colliery			
Period	01-November-21		to	30-November-21
Location	LDP001 (EPA ID # 1)			
Date sampled	Weekly			
Date reported	Refer report date			
Monitoring requirement	Weekly			
pH limit	6.5 - 8.5			
TSS limit (mg/L)	50			
Oil and grease limit (mg/L)	10			
Exceedance (Yes/No)	No			
Water Quality Results				
Date	pH	TSS (mg/L)	Oil and grease (mg/L)	Electrical Conductivity (µS/cm)
1/11/2021	7.72	18	<5	26,000
10/11/2021	7.76	5	<5	27,600
15/11/2021	7.84	10	7 [^]	24,300
24/11/2021	7.72	8	<5	27,900
Average	7.76	10.25	5.5	26,450

[^] = initial oil and grease result of 22 mg/L. Exceedance reported to NSW EPA, NSW DPIE and NSW Resources Regulator, subsequent investigations into the incident indicated duplicate samples

Monthly water quality results, primarily metals, 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		24-Nov-2021 12:30
Compound	CAS Number	LOR	Unit	ES2142633-001 Result
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	130
Silicon as SiO2	14464-46-1	0.1	mg/L	12.8
ED093T: Total Major Cations				
Calcium	7440-70-2	1	mg/L	250
Magnesium	7439-95-4	1	mg/L	276
Potassium	7440-09-7	1	mg/L	40
EG020F: Dissolved Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	<10
Silver	7440-22-4	1	µg/L	<1
Arsenic	7440-38-2	1	µg/L	2
Beryllium	7440-41-7	1	µg/L	<1
Cadmium	7440-43-9	0.1	µg/L	<0.1
Cobalt	7440-48-4	1	µg/L	<1
Chromium	7440-47-3	1	µg/L	<1
Copper	7440-50-8	1	µg/L	<1
Manganese	7439-96-5	1	µg/L	67
Molybdenum	7439-98-7	1	µg/L	9
Nickel	7440-02-0	1	µg/L	4
Lead	7439-92-1	1	µg/L	<1
Selenium	7782-49-2	10	µg/L	<10
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	50
Silver	7440-22-4	1	µg/L	<1
Arsenic	7440-38-2	1	µg/L	2
Boron	7440-42-8	50	µg/L	360
Barium	7440-39-3	1	µg/L	232
Titanium	7440-32-6	10	µg/L	<10
Beryllium	7440-41-7	1	µg/L	<1
Cadmium	7440-43-9	0.1	µg/L	<0.1
Cobalt	7440-48-4	1	µg/L	<1
Chromium	7440-47-3	1	µg/L	1
Copper	7440-50-8	1	µg/L	<1
EG020T: Total Metals by ICP-MS - Continued				
Lithium	7439-93-2	1	µg/L	536
Molybdenum	7439-98-7	1	µg/L	11
Nickel	7440-02-0	1	µg/L	3
Lead	7439-92-1	1	µg/L	<1
Antimony	7440-36-0	1	µg/L	1
Selenium	7782-49-2	10	µg/L	<10
Tin	7440-31-5	1	µg/L	<1
Vanadium	7440-62-2	10	µg/L	<10
Zinc	7440-66-6	5	µg/L	7
Iron	7439-89-6	50	µg/L	90
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	0.6
EK055G: Ammonia as N by Discrete Analyser				
Ammonia as N	7664-41-7	0.01	mg/L	1.00
EK067G: Total Phosphorus as P by Discrete Analyser				
Total Phosphorus as P	----	0.01	mg/L	0.03

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Water – Volume

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

November 2021		
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
01/11/2021	kL	1767.04
02/11/2021	kL	1803.74
03/11/2021	kL	650.19
04/11/2021	kL	1106.85
05/11/2021	kL	1766.72
06/11/2021	kL	1791.03
07/11/2021	kL	1808.81
08/11/2021	kL	1824.98
09/11/2021	kL	1827.11
10/11/2021	kL	1997.52
11/11/2021	kL	1629.64
12/11/2021	kL	3093.32
13/11/2021	kL	1944.53
14/11/2021	kL	1213.97
15/11/2021	kL	1727.55
16/11/2021	kL	1533.24
17/11/2021	kL	2537.30
18/11/2021	kL	2298.53
19/11/2021	kL	1726.50
20/11/2021	kL	1668.70
21/11/2021	kL	737.02
22/11/2021	kL	1877.97
23/11/2021	kL	1283.07
24/11/2021	kL	1603.62
25/11/2021	kL	895.32
26/11/2021	kL	1541.34
27/11/2021	kL	1474.91
28/11/2021	kL	516.04
29/11/2021	kL	864.10
30/11/2021	kL	1944.71
Average	kL	1615.18

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 and Surface Water Discharge (ML)	Groundwater and Surface Water 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		
January 2022		
February 2022		
March 2022		
April 2022		
May 2022		
June 2022		

Air Quality

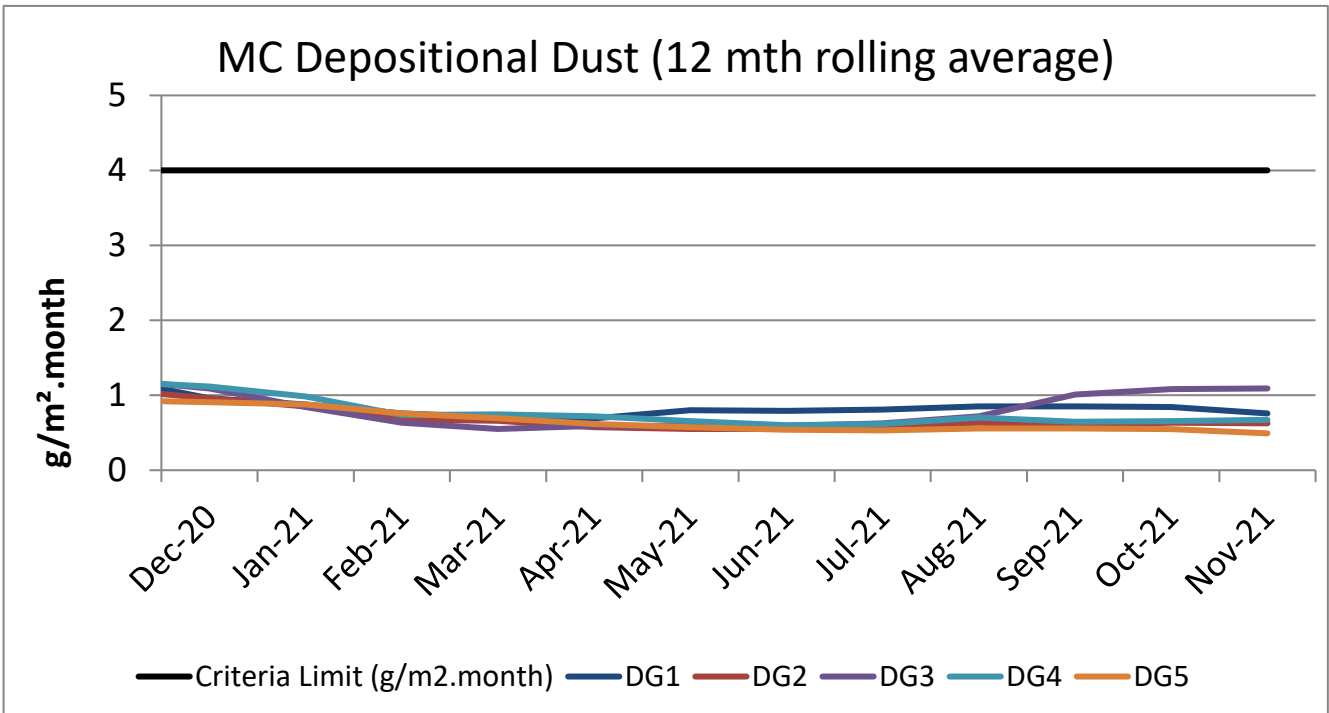
Monthly depositional dust results are shown below.

October 2021		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	11/10/2021 – 10/11/2021	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.5
4	DG2	0.6
5	DG3	1040
6	DG4	1.0
7	DG5	0.3
Sampling locations provided in Manning Colliery Air Quality Management Plan available on the Delta Coal website.		
<ul style="list-style-type: none">DDG003 impacted by sand and dirt contamination Delta Coal reported gauge contamination to DPIE, NSW EPA and RR. Adjacent gauges returned usual results and the contamination event was considered to be an isolated event.		
Notes:		

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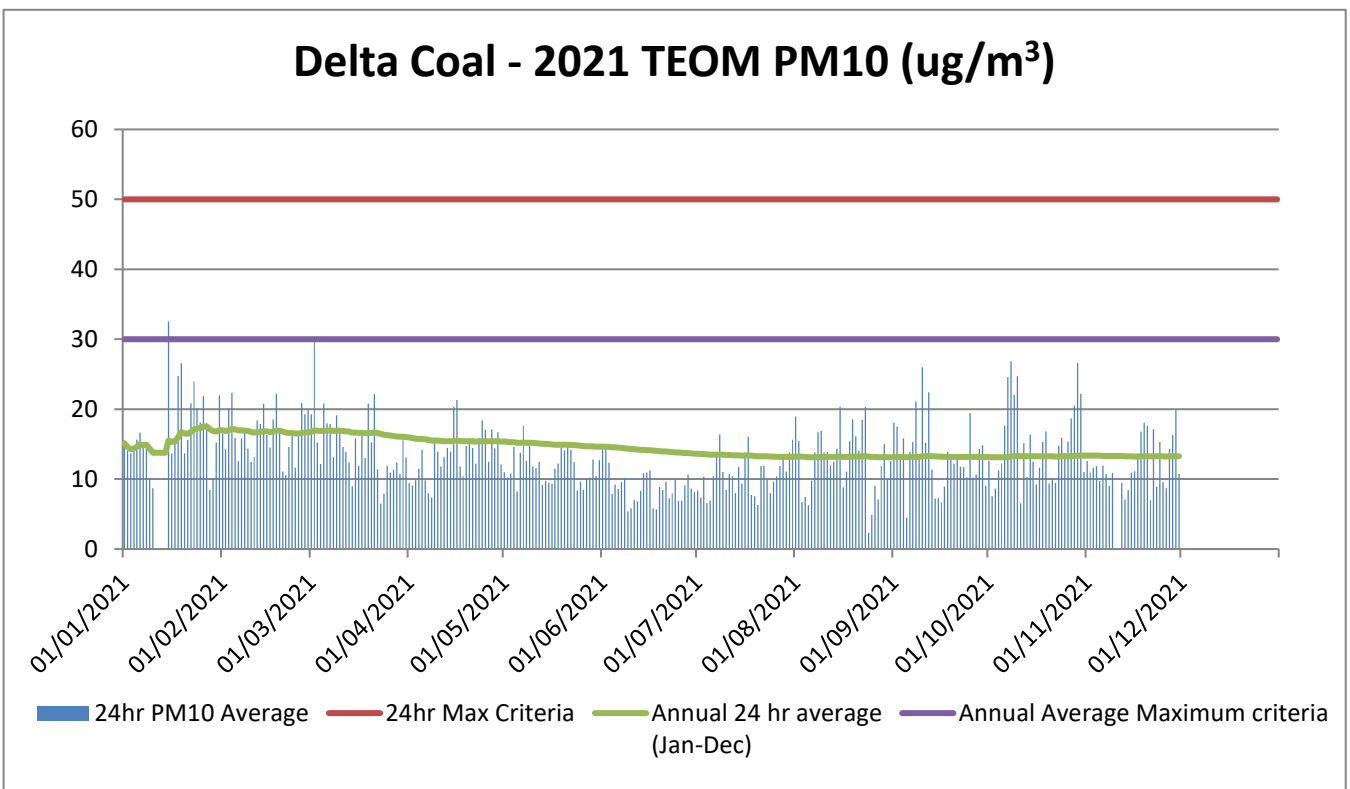
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Rolling annual average depositional dust results



Air Quality – PM₁₀

The 24hr PM₁₀ average from Delta Coal’s Tapered Element Oscillating Microbalance (TEOM) monitor is presented below for the year to date.



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Annual 24hr PM₁₀ average maximum criteria for the month 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.

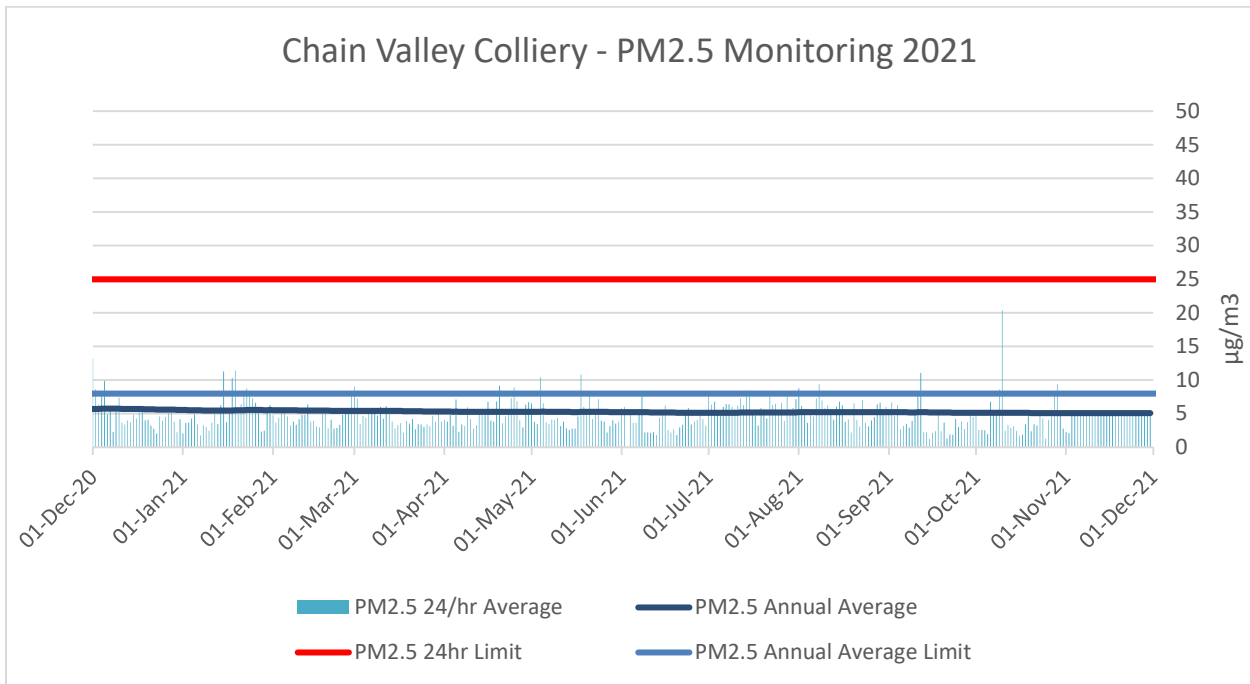
Variable	November	Total	Valid
A/C Temp	100%	8640	8640
A1	100%	8640	8640
A1_Scaled	100%	8640	8640
Bypass Flow	100%	8640	8640
Cap Temp	100%	8640	8640
Case Temp	100%	8640	8640
Config	100%	8640	8640
Dew Point	100%	8640	8640
Dig-In	100%	8640	8640
Dig-Latch	100%	8640	8640
ESN	100%	8640	8640
Filter Freq	100%	8640	8640
Filter Load	100%	8640	8640
Humidity	100%	8640	8640
MC	100%	8640	8640
MC 12Hr	100%	8640	8640
MC 1Hr	100%	8640	8640
MC 24Hr	100%	8640	8640
MC 30min	100%	8640	8640
MC 8Hr	100%	8640	8640
MC Total	100%	8640	8640
Mobile Signal	100%	8640	8640
Noise	100%	8640	8640
PM10 Flow	100%	8640	8640
Pressure	100%	8640	8640
Site	0.0%	8640	0
Temperature	100%	8640	8640
Tube Temp	100%	8640	8640
Vac Pressure	100%	8640	8640
Volts	100%	8640	8640

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.

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For the reporting period, the daily PM_{2.5} average concentration and annual average PM_{2.5} concentration did not exceed limits of 25 µg/m³ and 8 µg/m³ respectively.

PM_{2.5} data availability for:

- November 2021 data availability was 7%, due to a technical error in the BAM continuous logger between the 3rd and 30th November 2021, values were replaced with an annual average where data was not available; and
- 2021 year to date data availability has been 90%.

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Manningering Colliery Monthly Environmental Report – November 2021

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 2021			
Licensee	Great Southern Energy Pty Ltd		
Location	Manningering Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	6 th December 2021		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-21	108.4	12.5	38.2
Feb-21	110.2	13.9	33.1
Mar-21	551.6	13.1	31.1
Apr-21	56.8	6.2	28.3
May-21	30.8	4.1	25.6
June-21	74.6	3.3	21.5
July-21	37.2	2	24.8
August-21	60.4	3.6	26.3
September-21	73.4	5.4	30.5
October-21	16.4	7.5	33.1
November-21	223.6	8.9	27.6

Variable	November	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	100%	2880	2880
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