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# Mannering Colliery Monthly Website Report – July 2021

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<b>Site:</b>	Mannering Colliery
<b>Department:</b>	Technical Services
<b>Report Title:</b>	Monthly Environmental Report – July 2021
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<b>Distribution:</b>	Delta Coal website

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# Monthly Website Report

Manning Colliery Monthly Environmental Report – July 2021

## Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of July 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 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	<a href="http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50781&amp;SYSUID=1&amp;LICID=191">http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50781&amp;SYSUID=1&amp;LICID=191</a>

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.

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## 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 – PM<sub>10</sub>
- Air Quality – PM<sub>2.5</sub>; and
- Meteorological data.

## Definitions

g/m<sup>2</sup>/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 2021**

ALS – MC Water Analysis Reports **July 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.

July 2021				
<b>EPL</b>	191			
<b>Licensee</b>	Great Southern Energy Pty Ltd			
<b>Premises</b>	Manning Colliery			
<b>Period</b>	01-July-21		to	31-July-21
<b>Location</b>	LDP001 (EPA ID # 1)			
<b>Date sampled</b>	Weekly			
<b>Date reported</b>	Refer report date			
<b>Monitoring requirement</b>	Weekly			
<b>pH limit</b>	6.5 - 8.5			
<b>TSS limit (mg/L)</b>	50			
<b>Oil and grease limit (mg/L)</b>	10			
<b>Exceedance (Yes/No)</b>	No			
Water Quality Results				
Date	pH	TSS (mg/L)	Oil and grease (mg/L)	Electrical Conductivity (µS/cm)
08/07/2021	7.86	6	<5	16,400
13/07/2021	7.96	5	<5	21,600
22/07/2021	7.73	8	<5	25,460
29/07/2021	7.79	<5	<5	27,200
<b>Average</b>	7.84	6.3	<5	22,665
<b>Minimum</b>	7.73	5	<5	16,400
<b>Maximum</b>	7.96	8	<5	27,200

The water quality analytical results during the reporting period did not exceed the discharge water quality criteria within EPL 191. 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		LPD001
		Sampling date / time		22-Jul-2021 14:35
Compound	CAS Number	LOR	Unit	ES2127066-001
				Result
<b>ED040F: Dissolved Major Anions</b>				
Sulfur as S	63705-05-5	1	mg/L	164
Silicon as SiO2	14464-46-1	0.1	mg/L	16.6
<b>ED093T: Total Major Cations</b>				
Calcium	7440-70-2	1	mg/L	264
Magnesium	7439-95-4	1	mg/L	280
Potassium	7440-09-7	1	mg/L	41
<b>EG020F: Dissolved Metals by ICP-MS</b>				
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
Copper	7440-50-8	1	µg/L	<1
Cobalt	7440-48-4	1	µg/L	<1
Nickel	7440-02-0	1	µg/L	4
Lead	7439-92-1	1	µg/L	<1
Zinc	7440-66-6	5	µg/L	20
Manganese	7439-96-5	1	µg/L	25
Molybdenum	7439-98-7	1	µg/L	11
Selenium	7782-49-2	10	µg/L	<10
Silver	7440-22-4	1	µg/L	<1
Vanadium	7440-62-2	10	µg/L	<10
<b>EG020T: Total Metals by ICP-MS</b>				
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	218
Cadmium	7440-43-9	0.1	µg/L	<0.1
Chromium	7440-47-3	1	µg/L	<1
Copper	7440-50-8	1	µg/L	<1
Cobalt	7440-48-4	1	µg/L	<1
Nickel	7440-02-0	1	µg/L	4
Lead	7439-92-1	1	µg/L	<1
<b>EG020T: Total Metals by ICP-MS - Continued</b>				
Zinc	7440-66-6	5	µg/L	20
Lithium	7439-93-2	1	µg/L	521
Molybdenum	7439-98-7	1	µg/L	14
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
Boron	7440-42-8	50	µg/L	370
Iron	7439-89-6	50	µg/L	60
<b>EG035F: Dissolved Mercury by FIMS</b>				
Mercury	7439-97-6	0.1	µg/L	<0.1
<b>EG035T: Total Recoverable Mercury by FIMS</b>				
Mercury	7439-97-6	0.1	µg/L	<0.1
<b>EK055G: Ammonia as N by Discrete Analyser</b>				
Ammonia as N	7664-41-7	0.01	mg/L	0.74
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>				
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 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
01/07/2021	kL	1127.08
02/07/2021	kL	1128.36
03/07/2021	kL	1019.51
04/07/2021	kL	1087.04
05/07/2021	kL	1089.14
06/07/2021	kL	1078.83
07/07/2021	kL	1061.39
08/07/2021	kL	1379.38
09/07/2021	kL	789.91
10/07/2021	kL	633.14
11/07/2021	kL	1166.11
12/07/2021	kL	1221.55
13/07/2021	kL	1082.82
14/07/2021	kL	874.28
15/07/2021	kL	579.43
16/07/2021	kL	578.84
17/07/2021	kL	531.24
18/07/2021	kL	653.71
19/07/2021	kL	636.39
20/07/2021	kL	1015.87
21/07/2021	kL	1911.02
22/07/2021	kL	1655.67
23/07/2021	kL	1489.82
24/07/2021	kL	1847.85
25/07/2021	kL	1823.04
26/07/2021	kL	1847.79
27/07/2021	kL	1874.15
28/07/2021	kL	1870.32
29/07/2021	kL	1854.04
30/07/2021	kL	1858.47
31/07/2021		1862.62
Average	kL	1246
Minimum	kL	531.24
Maximum	kL	1911.02

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

## Water – Groundwater Discharge

Groundwater discharged from underground workings to the MCs retention Dams within the surface operational area has been detailed below. Manning Colliery operates Water Access License permitting the extraction of 450 megalitres per financial year and reports annual use to the Water NSW, Water Accounting System (iWAS).

MC Indicative 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	32.482	32.482
August 2021		
September 2021		
October 2021		
November 2021		
December 2021		
January 2022		
February 2022		
March 2022		
April 2022		
May 2022		
June 2022		

## Air Quality

Monthly depositional dust results are shown below.

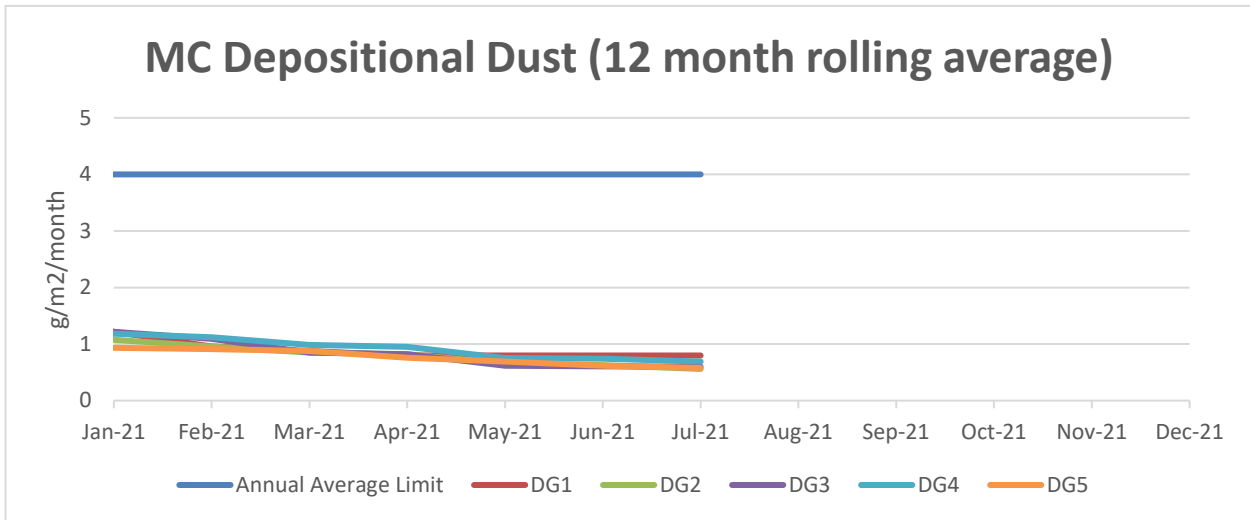
July 2021		
<b>EPL</b>	191	
<b>Limits</b>	Max. total deposited dust level	4g/m <sup>2</sup> /month
	Max. increase in deposited dust level	2g/m <sup>2</sup> /month
<b>Sampling Date</b>	11/06/2021 to 13/05/2021	
EPA ID no.	Site	Insoluble Matter (g/m <sup>2</sup> /month)
3	DG1	0.4
4	DG2	0.6
5	DG3	0.6
6	DG4	0.5
7	DG5	0.3
<b>Notes:</b>	Sampling locations provided in Manning Colliery Air Quality Management Plan available on the Delta Coal website.	



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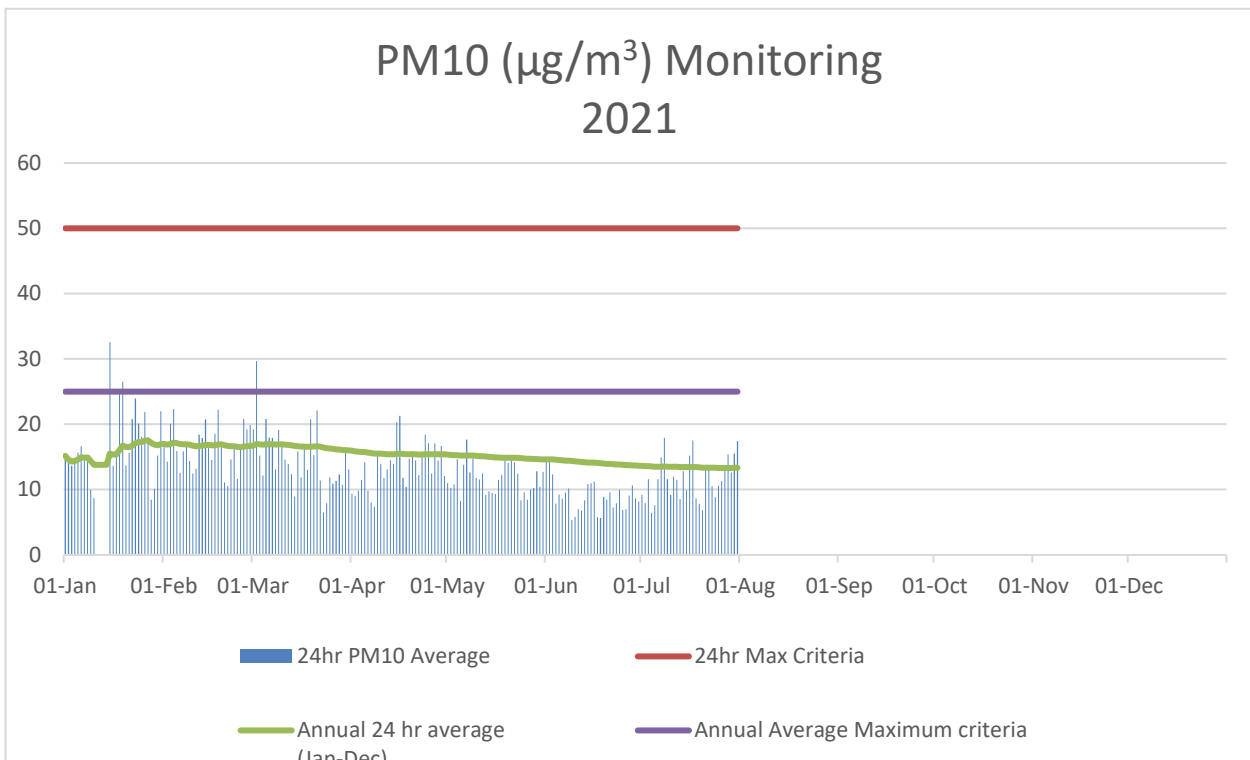
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## Rolling annual average depositional dust results



## Air Quality – PM<sub>10</sub>

The 24hr PM<sub>10</sub> average from Delta Coal’s Tapered Element Oscillating Microbalance (TEOM) monitor is presented below for the year to date.



Annual 24hr PM<sub>10</sub> 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 year to date.

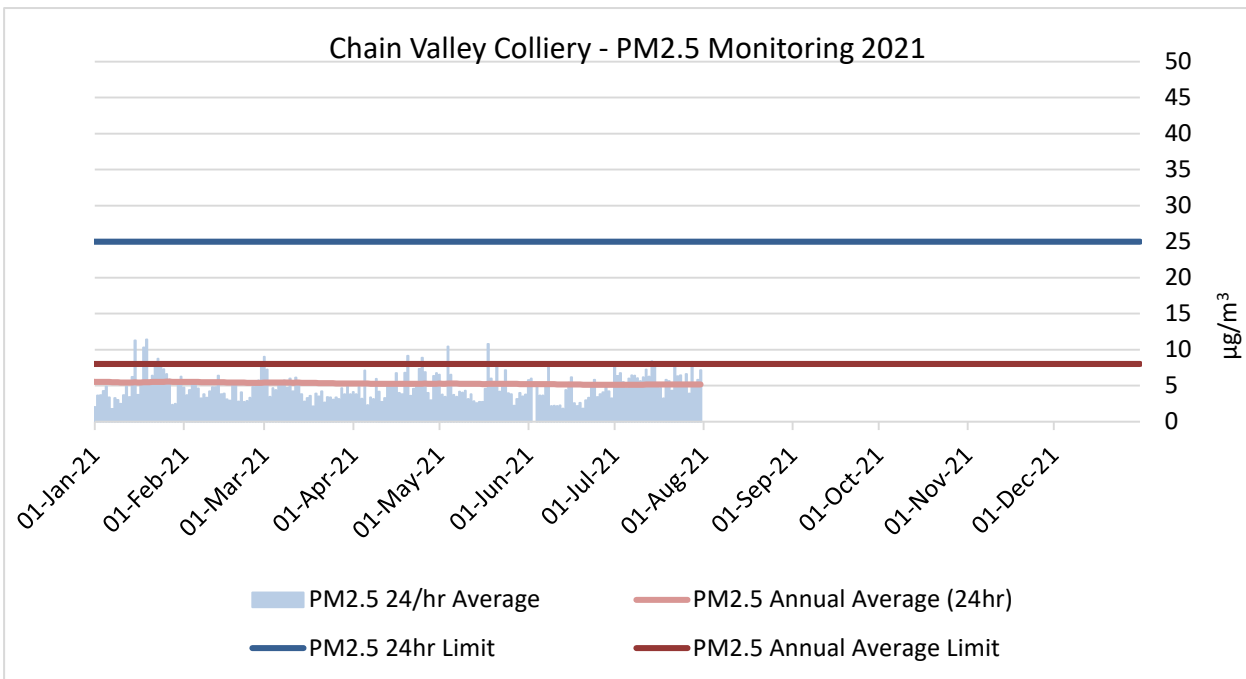
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Variable	July	Total	Valid
A/C Temp	100%	8928	8927
A1	100%	8928	8927
A1_Scaled	100%	8928	8927
Bypass Flow	100%	8928	8927
Cap Temp	100%	8928	8927
Case Temp	100%	8928	8927
Config	100%	8928	8927
Dew Point	100%	8928	8927
Dig-In	100%	8928	8927
Dig-Latch	100%	8928	8927
ESN	100%	8928	8927
Filter Freq	100%	8928	8927
Filter Load	100%	8928	8927
Humidity	100%	8928	8927
MC	100%	8928	8927
MC 12Hr	100%	8928	8927
MC 1Hr	100%	8928	8927
MC 24Hr	100%	8928	8927
MC 30min	100%	8928	8927
MC 8Hr	100%	8928	8927
MC Total	100%	8928	8927
Mobile Signal	100%	8928	8927
Noise	100%	8928	8927
PM10 Flow	100%	8928	8927
Pressure	100%	8928	8927
Site	0.0%	8928	0
Temperature	100%	8928	8927
Tube Temp	100%	8928	8927
Vac Pressure	100%	8928	8927
Volts	100%	8928	8927

### Air Quality – PM<sub>2.5</sub>

Delta Coal utilises PM<sub>2.5</sub> data obtained from Delta Electricity owned and operated beta attenuation monitor (BAM). The PM<sub>2.5</sub> monitor is located on Tingley Road, Wye.



For the period of May 2021, the daily PM<sub>2.5</sub> average concentration and annual average PM<sub>2.5</sub> concentration did not exceed limits of 25  $\mu\text{g}/\text{m}^3$  and 8  $\mu\text{g}/\text{m}^3$  respectively.

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PM<sub>2.5</sub> data availability for:

- July 2021 data availability was 99.9%; and
- 2021 year to date data availability has been 98%.

### 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 2021			
Licensee	Great Southern Energy Pty Ltd		
Location	Manning Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	12 <sup>th</sup> July 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

Variable	July	Total	Valid
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	100%	2976	2976
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