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# Mannering Colliery Monthly Website Report – January 2021

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<b>Site:</b>	Mannering Colliery
<b>Department:</b>	Technical Services
<b>Report Title:</b>	Monthly Environmental Report – January 2021
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<b>Report Date:</b>	14 <sup>th</sup> February 2021
<b>Distribution:</b>	Delta Coal website

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# Report

Manning Colliery Monthly Environmental Report – January 2021

## Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of January 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).

This report provides environmental monitoring data from Manning Colliery for the period 1<sup>st</sup> to 31<sup>st</sup> January 2021.

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.

### 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: 25 November 2019)

Steel River Testing - Dust Deposition Report **January 2021**

Steel River Testing - Water Analysis Report **January 2021**

ALS – Water Analysis Report **January 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.

January 2021			
<b>EPL</b>	191		
<b>Licensee</b>	Great Southern Energy Pty Ltd		
<b>Premises</b>	Manning Colliery		
<b>Period</b>	01-Jan-21	to	31-Jan-20
<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)
Wednesday, 6 January 2021	7.7	2	<5
Monday, 11 January 2021	7.8	4	<5
Wednesday, 20 January 2021	7.7	<1	<5
Monday, 25 January 2021	7.9	5	<5
<b>Average</b>	7.8	3.7	<5
<b>Minimum</b>	7.7	<1	<5
<b>Maximum</b>	7.9	5.0	<5

The water quality analytical results during the reporting period did not exceed the discharge water quality criteria within Project Approval MP06\_0311. 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		20-Jan-2021 13:00
Compound	CAS Number	LOR	Unit	ES2101918-001 Result
<b>EA010P: Conductivity by PC Titrator</b>				
Electrical Conductivity @ 25°C	----	1	µS/cm	28300
<b>ED040F: Dissolved Major Anions</b>				
Sulfur as S	63705-05-5	1	mg/L	156
Silicon as SiO <sub>2</sub>	14464-46-1	0.1	mg/L	13.8
<b>ED093T: Total Major Cations</b>				
Calcium	7440-70-2	1	mg/L	274
Magnesium	7439-95-4	1	mg/L	293
Potassium	7440-09-7	1	mg/L	38
<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
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	44
Molybdenum	7439-98-7	1	µg/L	6
Nickel	7440-02-0	1	µg/L	4
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
<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	214
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
<b>EG020T: Total Metals by ICP-MS - Continued</b>				
Lead	7439-92-1	1	µg/L	<1
Lithium	7439-93-2	1	µg/L	478
Molybdenum	7439-98-7	1	µg/L	5
Nickel	7440-02-0	1	µg/L	4
Selenium	7782-49-2	10	µg/L	<10
Silver	7440-22-4	1	µg/L	12
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	9
Boron	7440-42-8	50	µg/L	380
Iron	7439-89-6	50	µg/L	<50
<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	1.20
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>				
Total Phosphorus as P	----	0.01	mg/L	0.12

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### Water – Volume

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

January 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
01/12/2020	kL	487.89
02/12/2020	kL	373.23
03/12/2020	kL	1031.6
04/12/2020	kL	1447.92
05/12/2020	kL	762.1
06/12/2020	kL	1614.2
07/12/2020	kL	1155.17
08/12/2020	kL	371
09/12/2020	kL	1240.6
10/12/2020	kL	1482.15
11/12/2020	kL	252.12
12/12/2020	kL	499.57
13/12/2020	kL	750.61
14/12/2020	kL	646.1
15/12/2020	kL	453.2
16/12/2020	kL	1321.69
17/12/2020	kL	989.03
18/12/2020	kL	533.39
19/12/2020	kL	0
20/12/2020	kL	1166.09
21/12/2020	kL	1199.73
22/12/2020	kL	162.74
23/12/2020	kL	1005.36
24/12/2020	kL	1449.32
25/12/2020	kL	506.4
26/12/2020	kL	476.1
27/12/2020	kL	974.2
28/12/2020	kL	833.87
29/12/2020	kL	1305.5
30/12/2020	kL	613.34
31/12/2020	kL	732.63
Average	kL	833.45
Minimum	kL	0
Maximum	kL	1614.2

The daily water volumes discharged from LDP001 during November 2020 were below the relevant limit.

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## Water – Groundwater Discharge

Groundwater discharged from underground workings to the MC Pollution Control Dams within the surface operational area has been detailed below. Delta Coal notes that MC does not have calibrated volume sensors on underground piping, as such, discharge from LDP001 is utilised to estimate groundwater extraction. 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 Groundwater Pumped to Surface Totals FY2019-2020		
Date (month)	Groundwater Discharge (ML)	Groundwater Discharge (Total ML Water Year to Date)
July 2020	26.83	26.83
August 2020	29.04	55.87
September 2020	17.09	72.96
October 2020	30.9	103.88
November 2020	28.03	131.91
December 2020	30.33	162.24
January 2021	25.84	188.08
February 2021		
March 2021		
April 2021		
May 2021		
June 2021		

## Air Quality

Monthly depositional dust results are shown below.

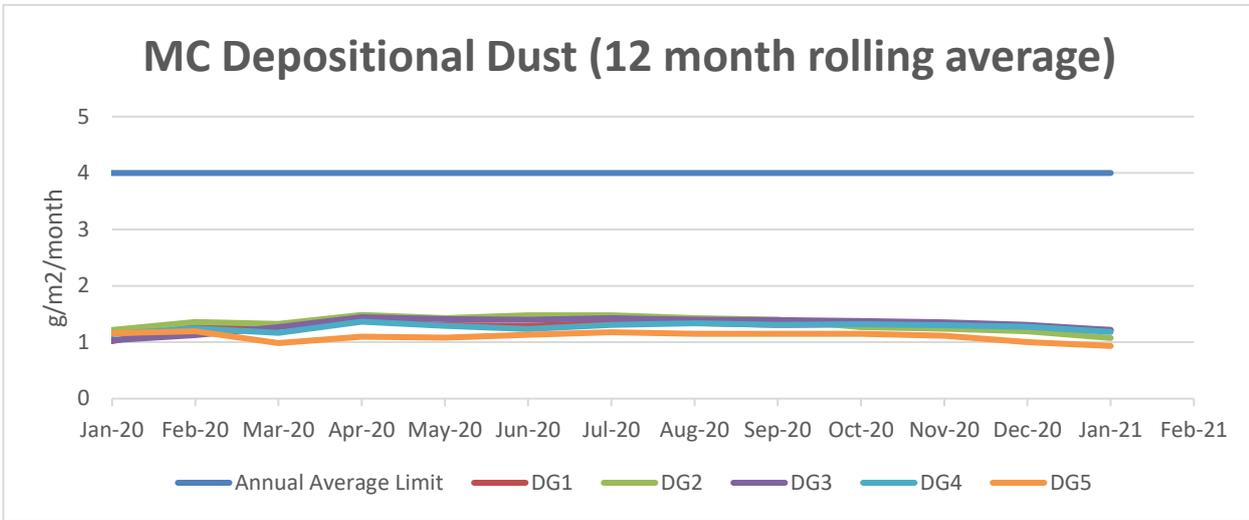
January 2021		
<b>EPL</b>	191	
<b>Limits</b>	Max. total deposited dust level	4g/m <sup>2</sup> /month
	Max. increase in deposited dust level	2g/m <sup>2</sup> /month
<b>Sampling Date</b>	07/12/2020 to 08/01/2021	
EPA ID no.	Site	Insoluble Matter (g/m <sup>2</sup> /month)
3	DG1	0.9
4	DG2	0.6
5	DG3	0.8
6	DG4	0.3
7	DG5	0.2
Notes:		

There were no exceedances of the annual average air quality limits during the reporting period.

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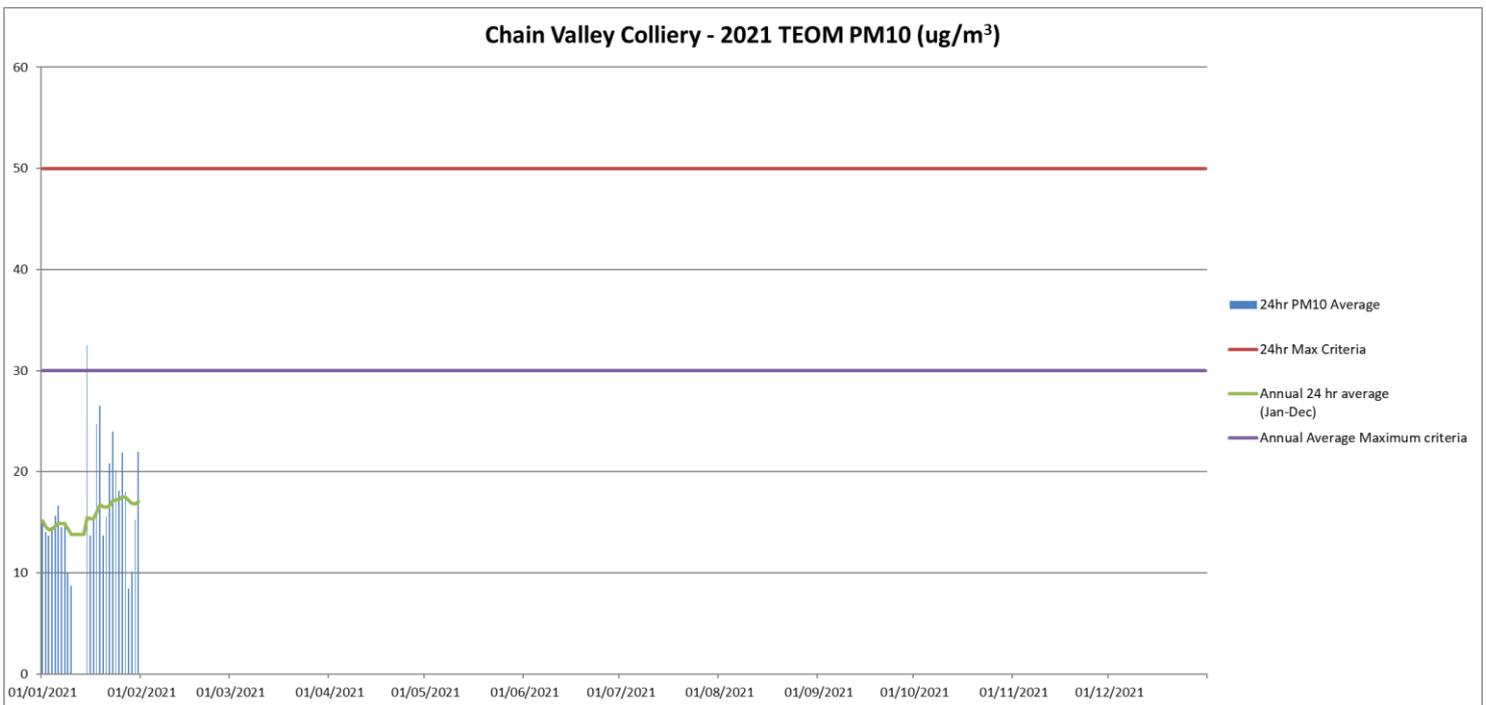
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## Rolling annual average depositional dust results



## Air Quality – PM<sub>10</sub>

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



Annual 24hr PM<sub>10</sub> average maximum criteria for January 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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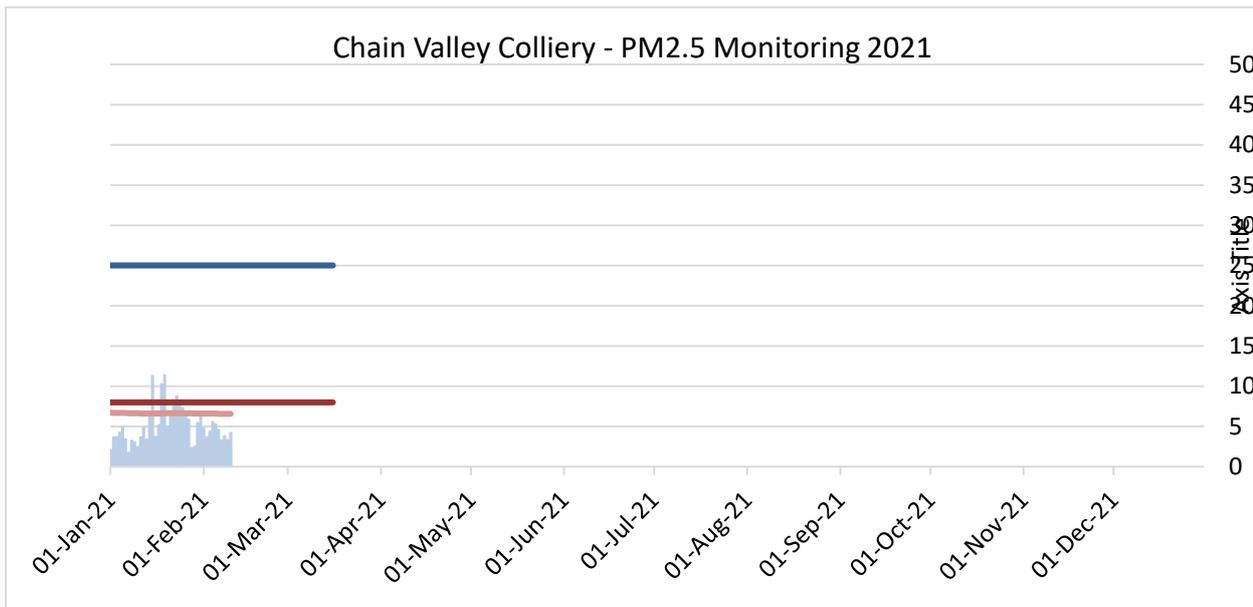
Variable	January	Total	Valid
A/C Temp	92.9%	8928	8298
A1	92.9%	8928	8298
A1_Scaled	92.9%	8928	8298
Bypass Flow	92.9%	8928	8298
Cap Temp	92.9%	8928	8298
Case Temp	92.9%	8928	8298
Config	92.9%	8928	8298
Dew Point	92.9%	8928	8298
Dig-In	92.9%	8928	8298
Dig-Latch	92.9%	8928	8298
ESN	92.9%	8928	8298
Filter Freq	92.9%	8928	8298
Filter Load	92.9%	8928	8298
Humidity	92.9%	8928	8298
MC	92.9%	8928	8298
MC 12Hr	92.9%	8928	8298
MC 1Hr	92.9%	8928	8298
MC 24Hr	92.9%	8928	8298
MC 30min	92.9%	8928	8298
MC 8Hr	92.9%	8928	8298
MC Total	92.9%	8928	8298
Mobile Signal	92.9%	8928	8298
Noise	92.9%	8928	8298
PM10 Flow	92.9%	8928	8298
Pressure	92.9%	8928	8298
Site	0.0%	8928	0
Temperature	92.9%	8928	8298
Tube Temp	92.9%	8928	8298
Vac Pressure	92.9%	8928	8298
Volts	92.9%	8928	8298

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### Air Quality – PM<sub>2.5</sub>

Delta Coal utilises PM<sub>2.5</sub> data obtained from Vales Point Power Station owned and operated beta attenuation monitor (BAM). The PM<sub>2.5</sub> monitor is located on Tingley Road, Wyee. Delta Coal is required to monitor PM<sub>2.5</sub> concentration following the approval of Development Consent SSD-5465 Modification 3 and Project Approval MP06\_0311 Modification 5 on the 26<sup>th</sup> June 2020.



For the period of January 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 µg/m<sup>3</sup> and 8 µg/m<sup>3</sup> respectively.

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

- January 2020 period was 99.8%; and
- 2021 year to date data availability has been 99.8%.

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### 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			
Licensee	Great Southern Energy Pty Ltd		
Location	Manning Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	2 <sup>nd</sup> February 2021		
Month	Total Rainfall/Month mm	Min Temp	Max Temp
Jan-21	108.4	13.9	37.3

Variable	January	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