
Mannering Colliery Monthly Website Report – March 2021

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Department:	Technical Services
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Table of Contents

Summary	3
Introduction	3
Scope.....	4
Definitions.....	4
References	4
Monitoring Results.....	5
Water – Quality	5
Water – Volume.....	7
Water – Groundwater Discharge.....	9
Air Quality.....	9
Rolling annual average depositional dust results.....	10
Air Quality – PM ₁₀	10
Air Quality – PM _{2.5}	12
Weather Data	13

Report

Manning Colliery Monthly Environmental Report – March 2021

Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of March 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	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: 25 November 2019)

ALS - Dust Deposition Report **March 2021**

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

Report

Manning Colliery Monthly Environmental Report – March 2021

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.

March 2021				
EPL	191			
Licensee	Great Southern Energy Pty Ltd			
Premises	Manning Colliery			
Period	01-Mar-21	to	31-Mar-20	
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)
01/03/2021	7.77	<5	<5	25,500
10/03/2021	7.77	13	<5	26,600
15/03/2021	7.76	18	<5	20,100
26/03/2021	7.76	6	<5	23,500
Average	7.77	12.3	<5	23,925
Minimum	7.76	6	<5	20,100
Maximum	7.77	18	<5	26,600

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.

Report

Manning Colliery Monthly Environmental Report – March 2021

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID		LDP001
		Sampling date / time		26-Mar-2021 11:20
Compound	CAS Number	LOR	Unit	ES2111102-001
				Result
EA005: pH				
pH Value	----	0.01	pH Unit	7.76
EA010P: Conductivity by PC Titrator				
Electrical Conductivity @ 25°C	----	1	µS/cm	23500
EA025: Total Suspended Solids dried at 104 ± 2°C				
Suspended Solids (SS)	----	5	mg/L	6
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	117
Silicon as SiO ₂	14464-46-1	0.1	mg/L	11.3
ED093T: Total Major Cations				
Calcium	7440-70-2	1	mg/L	207
Magnesium	7439-95-4	1	mg/L	274
Potassium	7440-09-7	1	mg/L	33
EG020F: Dissolved Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	10
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
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	52
Molybdenum	7439-98-7	1	µg/L	4
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	8
EG020T: Total Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	110
Antimony	7440-36-0	1	µg/L	1
Arsenic	7440-38-2	1	µg/L	2
Beryllium	7440-41-7	1	µg/L	<1
Barium	7440-39-3	1	µg/L	205
EG020T: Total Metals by ICP-MS - Continued				
Cadmium	7440-43-9	0.1	µg/L	<0.1
Chromium	7440-47-3	1	µg/L	2
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	576
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	<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
Zinc	7440-66-6	5	µg/L	7
Boron	7440-42-8	50	µg/L	400
Iron	7439-89-6	50	µg/L	130
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	0.94
EK067G: Total Phosphorus as P by Discrete Analyser				
Total Phosphorus as P	----	0.01	mg/L	<0.05
EP020: Oil and Grease (O&G)				
Oil & Grease	----	5	mg/L	<5

Report

Manning Colliery Monthly Environmental Report – March 2021

Water – Volume

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

March 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
01/03/2021	kL	1,345
02/03/2021	kL	483
03/03/2021	kL	1,131
04/03/2021	kL	1,476
05/03/2021	kL	771
06/03/2021	kL	492
07/03/2021	kL	1,305
08/03/2021	kL	1,353
09/03/2021	kL	956
10/03/2021	kL	822
11/03/2021	kL	1,216
12/03/2021	kL	642
13/03/2021	kL	710
14/03/2021	kL	2,522
15/03/2021	kL	1,496
16/03/2021	kL	1,154
17/03/2021	kL	821
18/03/2021	kL	3,859
19/03/2021	kL	2,047
20/03/2021	kL	3,116
21/03/2021	kL	4,127
22/03/2021	kL	1,556
23/03/2021	kL	1,683
24/03/2021	kL	1,273
25/03/2021	kL	1,615
26/03/2021	kL	2,095
27/03/2021	kL	1,734
28/03/2021	kL	1,571
29/03/2021	kL	560
30/03/2021	kL	865
31/03/2021	kL	666
Average	kL	1466
Minimum	kL	483
Maximum	kL	4,127

Report

Mannering Colliery Monthly Environmental Report – March 2021

There was one exceedance of the daily volumetric discharge limit for Mannering Colliery at LDP1 on the 21st March 2021. The exceedance occurred during a significant rainfall event occurring between the 18th and 21st March 2021 where Mannering Colliery meteorological station recorded greater than 367.6 mm of rainfall over the span of 4 days. Mannering Colliery ceased mine dewatering operations for the period with minimal discharge occurring.

Condition L3.2 of EPL 191 states that an exceedance of the volume limit at EPA Point 1 (LDP 1) if it occurs solely as a result of rainfall at the premises.

- L3.2 Exceedance of the volume limit for Point 1 is permitted only if the discharge from Point 1 occurs solely as a result of rainfall at the premises exceeding 10mm during the 24 hours immediately prior to the commencement of discharge

Report

Manning Colliery Monthly Environmental Report – March 2021

Water – Groundwater Discharge

Groundwater discharged from underground workings to the MCs retention 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 Indicative Groundwater Pumped to Surface Totals FY2020-2021		
Date (month)	Groundwater and Surface Water Discharge (ML)	Groundwater and Surface Water 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	30.62	218.70
March 2021	45.46	264.16
April 2021		
May 2021		
June 2021		

Air Quality

Monthly depositional dust results are shown below.

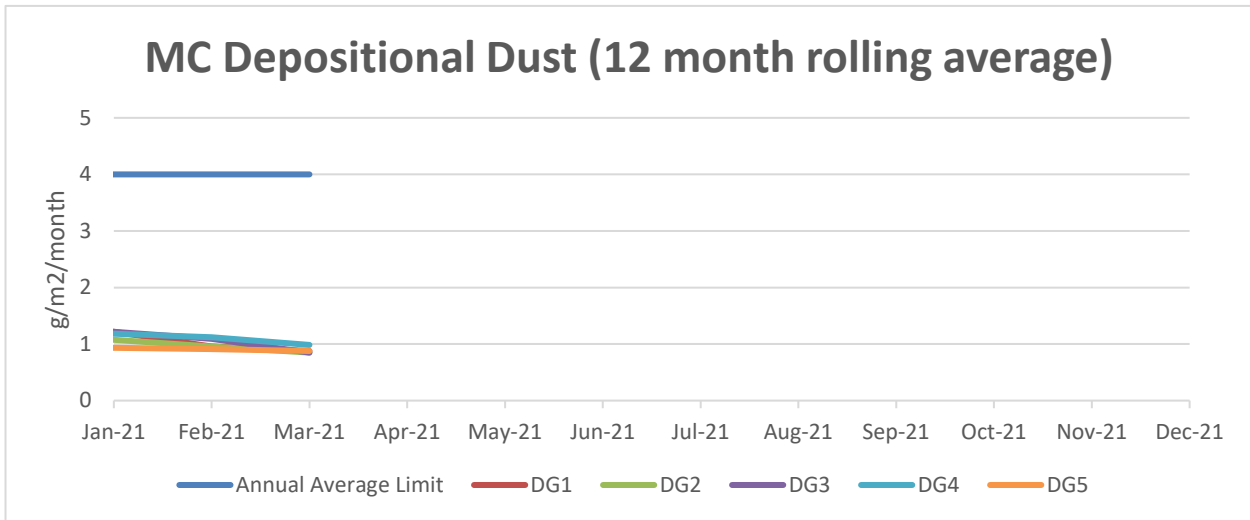
March 2021		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	08/02/2021 to 12/03/2021	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.3
4	DG2	0.4
5	DG3	0.3
6	DG4	0.9
7	DG5	0.4
Notes:		

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

Report

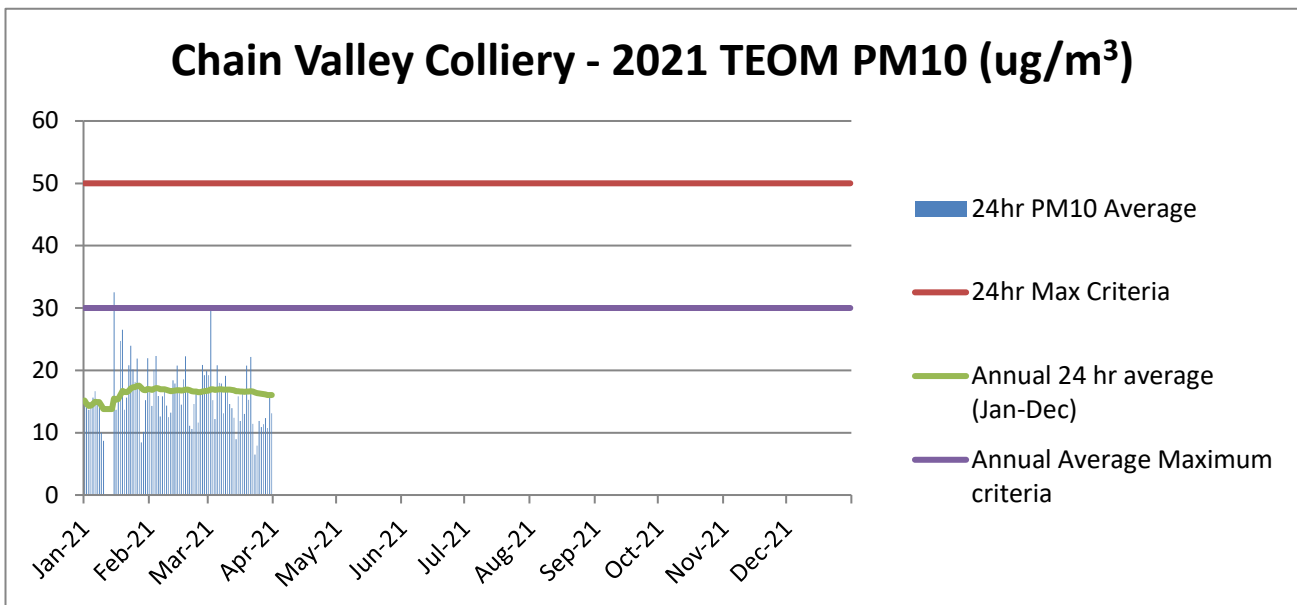
Manning Colliery Monthly Environmental Report – March 2021

Rolling annual average depositional dust results



Air Quality – PM₁₀

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



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 year to date.

Report

Manning Colliery Monthly Environmental Report – March 2021

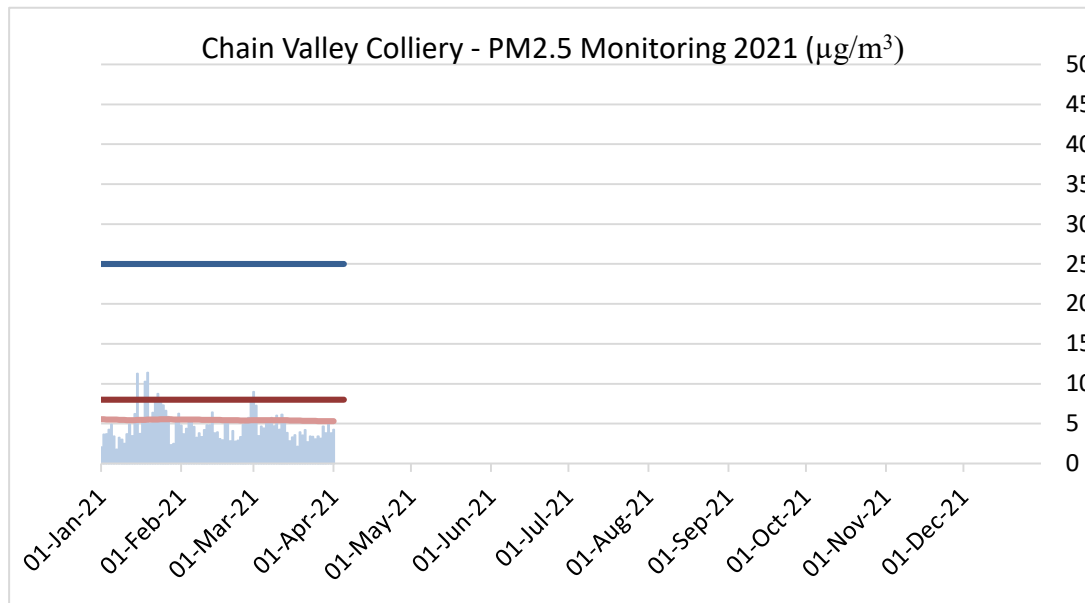
Variable	March	Total	Valid
A/C Temp	100%	8928	8928
A1	100%	8928	8928
A1_Scaled	100%	8928	8928
Bypass Flow	100%	8928	8928
Cap Temp	100%	8928	8928
Case Temp	100%	8928	8928
Config	100%	8928	8928
Dew Point	100%	8928	8928
Dig-In	100%	8928	8928
Dig-Latch	100%	8928	8928
ESN	100%	8928	8928
Filter Freq	100%	8928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

Report

Manning Colliery Monthly Environmental Report – March 2021

Air Quality – PM_{2.5}

Delta Coal utilises PM_{2.5} data obtained from Vales Point Power Station owned and operated beta attenuation monitor (BAM). The PM_{2.5} monitor is located on Tingley Road, Wyee. Delta Coal is required to monitor PM_{2.5} concentration following the approval of Development Consent SSD-5465 Modification 3 and Project Approval MP06_0311 Modification 5 on the 26th June 2020.



For the period of March 2021, 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:

- March 2021 data availability was 95%; and
- 2021 year to date data availability has been 98%.

Report

Manningering Colliery Monthly Environmental Report – March 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	12 th April 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

Variable	March	Total	Valid
10m Temp	99.8%	2976	2004
2m Temp	99.8%	2976	2004
A1	99.8%	2976	2004
A1_Scaled	99.8%	2976	2004
Assumed Temp	99.8%	2976	2004
Barometric	99.8%	2976	2004
Config	99.8%	2976	2004
Daily Evap	99.8%	2976	2004
Daily Rain	99.8%	2976	2004
Delta T	99.8%	2976	2004
Dew Point	99.8%	2976	2004
Dig-In	99.8%	2976	2004
Dig-Latch	99.8%	2976	2004
ESN	99.8%	2976	2004
FDI	99.8%	2976	2004
Heat Index	99.8%	2976	2004
Humidity	99.8%	2976	2004
Mobile Signal	99.8%	2976	2004
Rain	99.8%	2976	2004
Raw Evap	99.8%	2976	2004
S Class	99.8%	2976	2004
Scalar WS	99.8%	2976	2004
Sigma	99.8%	2976	2004
Site	0.0%	2976	0
Solar Radiation	99.8%	2976	2004
Vector WD	99.8%	2976	2004
Vector WS	99.8%	2976	2004
Volts	99.8%	2976	2004
Wind Chill	99.8%	2976	2004
Wind Direction	99.8%	2976	2004
Wind Speed	99.8%	2976	2004
WS Avg	99.8%	2976	2004
WS Gust	99.8%	2976	2004