



Mannering Colliery Monthly Website Report – October 2020

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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of October 2020.

Introduction

Great Southern Energy Pty Ltd (trading as Delta Coal) operates the 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 1st to 31st October 2020.

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; and
- Weather 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)

Steel River Testing - Dust Deposition Report **October 2020**

Steel River Testing - Water Analysis Report **October 2020**

ALS – Water Analysis Report **October 2020**

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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.

October 2020			
EPL	191		
Licensee	Great Southern Energy Pty Ltd		
Premises	Manning Colliery		
Period	01-Oct-20	to	31-Oct-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)
Friday, 2 October 2020	8.3	3	<5
Wednesday, 7 October 2020	7.7	2	<5
Tuesday, 13 October 2020	7.9	3	<5
Tuesday, 20 October 2020	7.8	5	<5
Friday, 30 October 2020	7.9	12	<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 October 2020.

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID			LDP001
Client sampling date / time				20-Oct-2020 11:25	
Compound	CAS Number	LOR	Unit	ES2036755-001	
					Result
EA010P: Conductivity by PC Titrator					
Electrical Conductivity @ 25°C	----	1	µS/cm	23300	
ED040F: Dissolved Major Anions					
Sulfur as S	63705-05-5	1	mg/L	150	
Silicon as SiO2	14464-46-1	0.1	mg/L	13.0	
ED093T: Total Major Cations					
Calcium	7440-70-2	1	mg/L	220	
Magnesium	7439-95-4	1	mg/L	275	
Potassium	7440-09-7	1	mg/L	36	
EG020F: Dissolved Metals by ICP-MS					
Aluminium	7429-90-5	10	µg/L	50	
Arsenic	7440-38-2	1	µg/L	4	
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	50	
Molybdenum	7439-98-7	1	µg/L	9	
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	131	
EG020T: Total Metals by ICP-MS					
Aluminium	7429-90-5	10	µg/L	50	
Antimony	7440-36-0	1	µg/L	2	
Arsenic	7440-38-2	1	µg/L	4	
Beryllium	7440-41-7	1	µg/L	<1	
Barium	7440-39-3	1	µg/L	329	
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	
EG020T: Total Metals by ICP-MS - Continued					
Lead	7439-92-1	1	µg/L	<1	
Lithium	7439-93-2	1	µg/L	562	
Molybdenum	7439-98-7	1	µg/L	10	
Nickel	7440-02-0	1	µg/L	4	
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	17	
Boron	7440-42-8	50	µg/L	370	
Iron	7439-89-6	50	µg/L	170	
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	1.04	
EK067G: Total Phosphorus as P by Discrete Analyser					
Total Phosphorus as P	----	0.01	mg/L	<0.05	

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Water – Volume

Monthly water volumes at Manning Colliery are summarised below.

October 2020		
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 (kL)
01/10/2020	kL	717
02/10/2020	kL	21
03/10/2020	kL	1
04/10/2020	kL	0
05/10/2020	kL	0
06/10/2020	kL	0
07/10/2020	kL	18
08/10/2020	kL	756
09/10/2020	kL	1214
10/10/2020	kL	1212
11/10/2020	kL	1240
12/10/2020	kL	332
13/10/2020	kL	712
14/10/2020	kL	1100
15/10/2020	kL	1426
16/10/2020	kL	838
17/10/2020	kL	1589
18/10/2020	kL	1652
19/10/2020	kL	1845
20/10/2020	kL	1817
21/10/2020	kL	1394
22/10/2020	kL	1544
23/10/2020	kL	1512
24/10/2020	kL	1353
25/10/2020	kL	556
26/10/2020	kL	2552
27/10/2020	kL	1471
28/10/2020	kL	430
29/10/2020	kL	1596
30/10/2020	kL	1504
31/10/2020	kL	525
Average	kL	998
Minimum	kL	0
Maximum	kL	2552

The daily water volumes discharged from LDP001 during October 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		
December 2020		
January 2021		
February 2021		
March 2021		
April 2021		
May 2021		
June 2021		

Air Quality

Monthly depositional dust results are shown below.

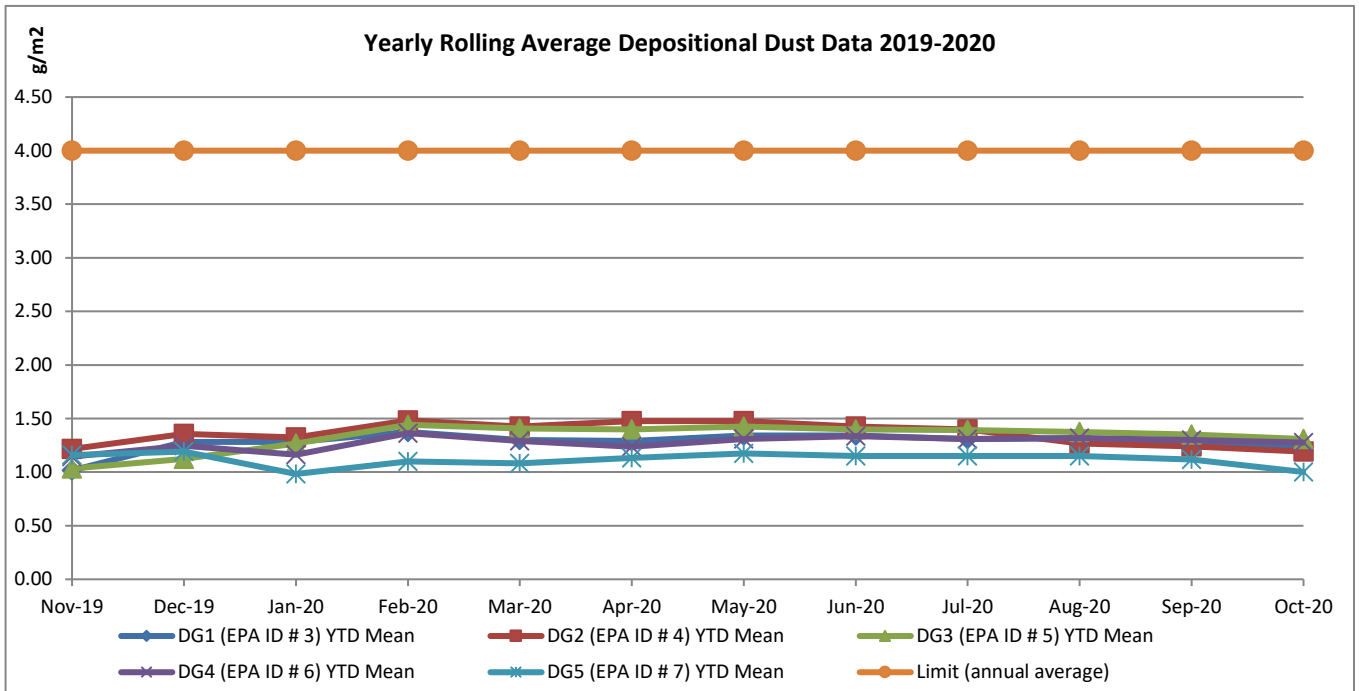
October 2020			
EPL		191	
Limit		Max. total deposited dust level	4g/m ² /month
		Max. increase in deposited dust level	2g/m ² /month
	Sampling Date	07/09/2020	to 07/10/2020
EPA ID no.	Site	Insoluble Matter (g/m ² /month)	
3	DG1	1.1	
4	DG2	0.4	
5	DG3	0.1	
6	DG4	0.5	
7	DG5	0.6	
Notes:			

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

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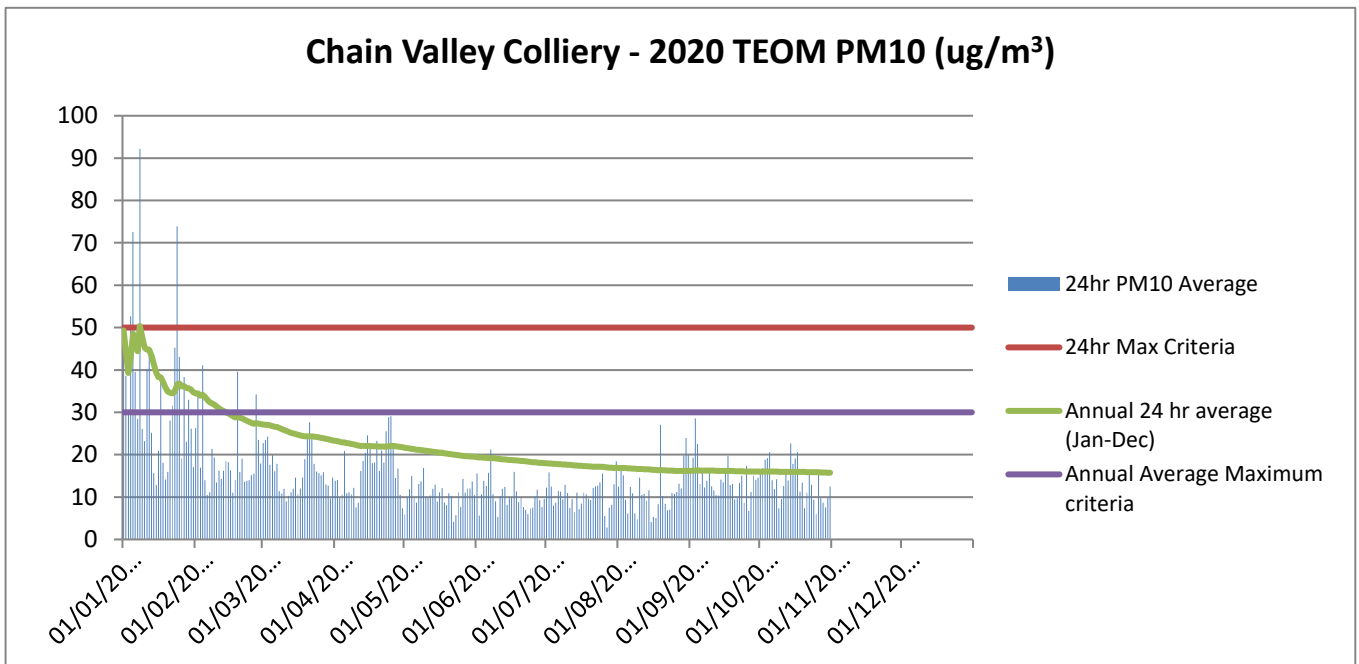
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Rolling annual average depositional dust results



Air Quality – 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 October 2020 is below the annual average maximum criteria limit. Data availability for the October period is summarised as follows.

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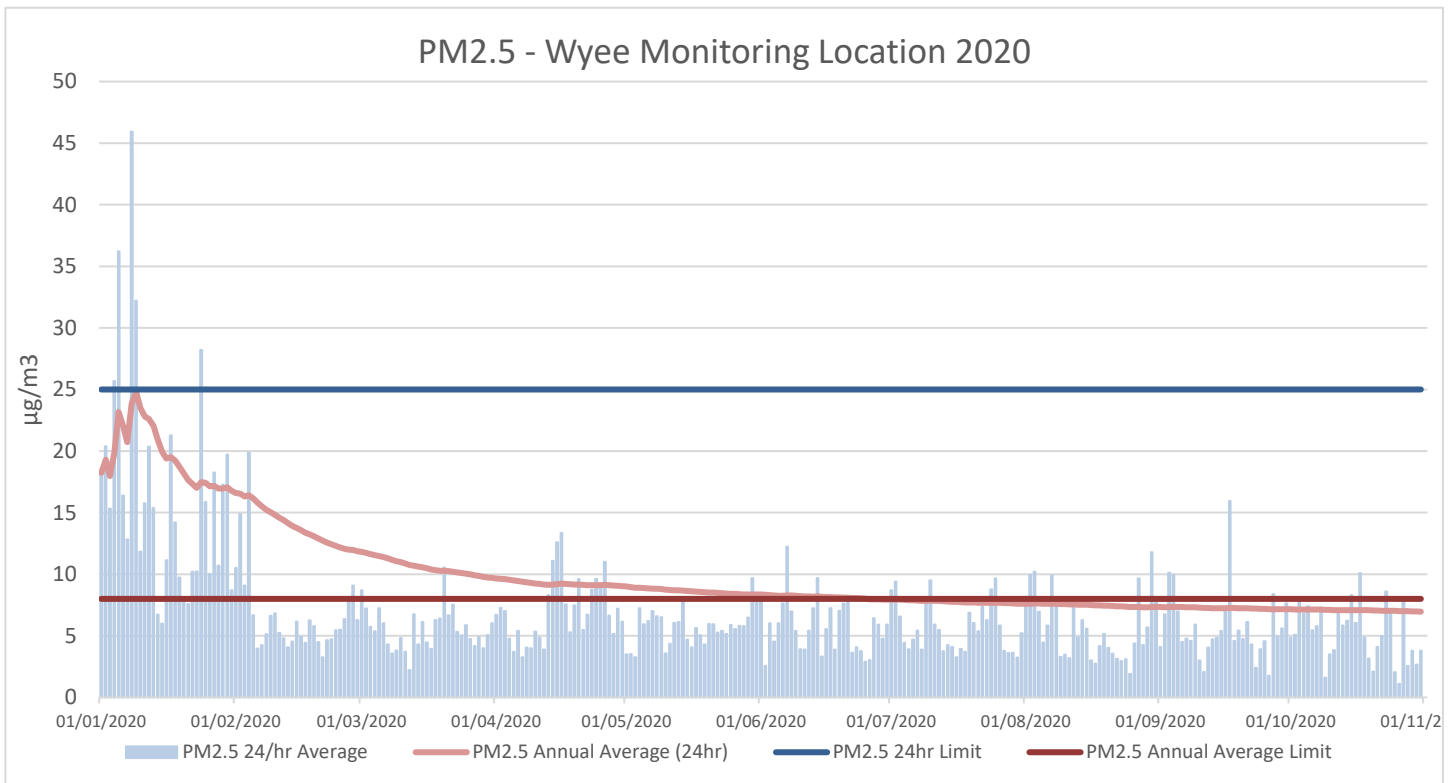
Variable	October	Total	Valid
A/C Temp	99.4%	8928	8876
A1	99.4%	8928	8876
A1_Scaled	99.4%	8928	8876
Bypass Flow	99.4%	8928	8876
Cap Temp	99.4%	8928	8876
Case Temp	99.4%	8928	8876
Config	99.4%	8928	8876
Dew Point	99.4%	8928	8876
Dig-In	99.4%	8928	8876
Dig-Latch	99.4%	8928	8876
ESN	99.4%	8928	8876
Filter Freq	99.4%	8928	8876
Filter Load	99.4%	8928	8876
Humidity	99.4%	8928	8876
MC	99.4%	8928	8876
MC 12Hr	99.4%	8928	8876
MC 1Hr	99.4%	8928	8876
MC 24Hr	99.4%	8928	8876
MC 30min	99.4%	8928	8876
MC 8Hr	99.4%	8928	8876
MC Total	99.4%	8928	8876
Mobile Signal	99.4%	8928	8876
Noise	99.4%	8928	8876
PM10 Flow	99.4%	8928	8876
Pressure	99.4%	8928	8876
Site	0.0%	8928	0
Temperature	99.4%	8928	8876
Tube Temp	99.4%	8928	8876
Vac Pressure	99.4%	8928	8876
Volts	99.4%	8928	8876

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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, Wye. Delta Coal has been 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.



Data obtained from PM_{2.5} monitoring indicates that through January and February of 2020 regional PM_{2.5} was impacted by extensive bush-fires, impacting the annual average value thereafter. For the period of October 2020, the 24-hr 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 the:

- October 2020 period was 79%; and
- 2020 period to current data availability has been 97%.

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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	05/11/2020		
Month	Total Rainfall/Month mm	Min Temp	Max Temp
Jan-20	28	18	44
Feb-20	350	16	37
Mar-20	159	12	38
Apr-20	46	9	28
May-20	88	5	27
Jun-20	67.6	4.5	22.7
Jul-20	232.8	3.7	23.3
Aug-20	55.2	2.1	25.2
Sep-20	29.2	5.3	30.2
Oct-20	169.4	8.8	31.8

Variable	October	Total	Valid
10m Temp	232.0%	2976	6904
2m Temp	232.0%	2976	6904
A1	232.0%	2976	6904
A1_Scaled	232.0%	2976	6904
Assumed Temp	232.0%	2976	6904
Barometric	232.0%	2976	6904
Config	232.0%	2976	6904
Daily Evap	232.0%	2976	6904
Daily Rain	232.0%	2976	6904
Delta T	232.0%	2976	6904
Dew Point	232.0%	2976	6904
Dig-In	232.0%	2976	6904
Dig-Latch	232.0%	2976	6904
ESN	232.0%	2976	6904
FDI	232.0%	2976	6904
Heat Index	232.0%	2976	6904
Humidity	232.0%	2976	6904
Mobile Signal	232.0%	2976	6904
Rain	232.0%	2976	6904
Raw Evap	232.0%	2976	6904
S Class	232.0%	2976	6904
Scalar WS	232.0%	2976	6904
Sigma	232.0%	2976	6904
Site	0.0%	2976	0
Solar Radiation	232.0%	2976	6904
Vector WD	232.0%	2976	6904
Vector WS	232.0%	2976	6904
Volts	232.0%	2976	6904
Wind Chill	232.0%	2976	6904
Wind Direction	232.0%	2976	6904
Wind Speed	232.0%	2976	6904
WS Avg	232.0%	2976	6904
WS Gust	232.0%	2976	6904