



Chain Valley Colliery Monthly Website Report – October 2020

Site:	Chain Valley Colliery
Department:	Technical Services
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Introduction

Great Southern Energy Pty Ltd (trading as Delta Coal) operates the Chain Valley Colliery, an underground coal mine at the southern end of Lake Macquarie.

Chain Valley 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) publically available;
- Conditions 8 & 11, Schedule 6, of Development Consent SSD-5465 (as modified), issued under the *Environmental Planning and Assessment Act 1979* to provide details of monitoring results and environmental performance;
- An Environment Protection Licence (EPL 1770) issued under the *Protection of the Environment Operations Act 1997*; and
- A Water Access Licence (WAL41508), Aquifer (Sydney Basin – North Coast Groundwater Source) for 4,443 unit shares (megalitres).

The above development consent and licences require various monitoring and reporting requirements to be undertaken by Delta Coal for Chain Valley Colliery.

This report provides environmental monitoring data from Chain Valley Colliery for the period of 1st to 31st of October 2020.

Details of the Chain Valley Colliery EPL 1770 are provided below.

Chain Valley Colliery Information	
Premises name	Chain Valley Colliery
Address	Construction Road, Chain Valley Bay, NSW, 2259
Licensee	Great Southern Energy Pty Ltd
EPL #	1770
EPL location	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50980&SYSUID=1&LICID=1770

The overall purpose of this monthly report is to keep stakeholders informed of the environmental monitoring results at Chain Valley 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 Chain Valley Colliery. Results are presented monthly with annual data and averages.

Where applicable, the results of the monitoring programs are compared with the relevant criteria (from the EPL or Development Consent) to assess compliance. Monitoring results presented in this report include:

- Water – quality;
- Water – volume;
- Depositional dust; 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.

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References

ALS Group - Monthly Water Monitoring Results **October 2020**

ALS Water - Report of Analysis **October 2020**

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

Development Consent SSD-5465 (as modified)

Environment Protection Licence (EPL) 1770 (Licence version date: 2 April 2019)

Monitoring Results

Water – Quality

Water quality results for October 2020 monthly surface water sampling at Chain Valley Colliery, EPA Discharge Point 1 are presented below.

October 2020	
EPL	1770
Licensee	Great Southern Energy Pty Ltd
Premises	Chain Valley Colliery
Date Sampled	20-Oct-2020
Date Reported	27-Oct-2020
Sampling Point	1

Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	4
Enterococci	col/100mL	-	620
Faecal Coliforms	CFU/100mL	200	<20
pH	pH	6.5-8.5	7.77
Total Sus. Solids	mg/L	50	13

As detailed above, results for monthly surface water sampling were below the relevant limits where applicable.

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Water – Volume

Monthly water volumes discharged from the site are summarised below.

The daily water volumes at EPA Discharge Point 1 during October 2020 were below the relevant limit.

October 2020	
EPL	1770
Licensee	Great Soutehrn Energy Pty Ltd
Premises	Chain Valley Colliery
Date Sampled	Daily
Date Reported	Refer report date
Discharge volume limit	12161 kilolitres per day
Sampling Point	1

Date (24 hour period)	Unit	Volume
01/10/2020	kL	6499
02/10/2020	kL	6573
03/10/2020	kL	6551
04/10/2020	kL	6566
05/10/2020	kL	6544
06/10/2020	kL	6623
07/10/2020	kL	5194
08/10/2020	kL	5396
09/10/2020	kL	5974
10/10/2020	kL	5628
11/10/2020	kL	5952
12/10/2020	kL	3436
13/10/2020	kL	2668
14/10/2020	kL	4508
15/10/2020	kL	6234
16/10/2020	kL	5192
17/10/2020	kL	4127
18/10/2020	kL	4583
19/10/2020	kL	5421
20/10/2020	kL	5119
21/10/2020	kL	6311
22/10/2020	kL	6475
23/10/2020	kL	8961
24/10/2020	kL	8483
25/10/2020	kL	4900
26/10/2020	kL	8098
27/10/2020	kL	6941
28/10/2020	kL	7747
29/10/2020	kL	7330
30/10/2020	kL	6732
31/10/2020	kL	6658

Average	kL	6046
Minimum	kL	2668
Maximum	kL	8961

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Water – Groundwater Discharge

Groundwater discharged from underground workings to the CVC Pollution Control Dams within the surface operational area has been detailed below. Chain Valley Colliery operates Water Access License permitting the extraction of 4,443 megalitres per water year (financial year calander).

CVC Groundwater to Surface Totals FY2020-2021		
Date (month)	Discharge (ML)	Discharge (ML YTD)
Jul-20	136.01	136.01
Aug-20	94.56	230.57
Sep-20	151.43	382
Oct-20	167.97	490.49
Nov-20		
Dec-20		
Jan-21		
Feb-21		
Mar-21		
Apr-21		
May-21		
Jun-21		

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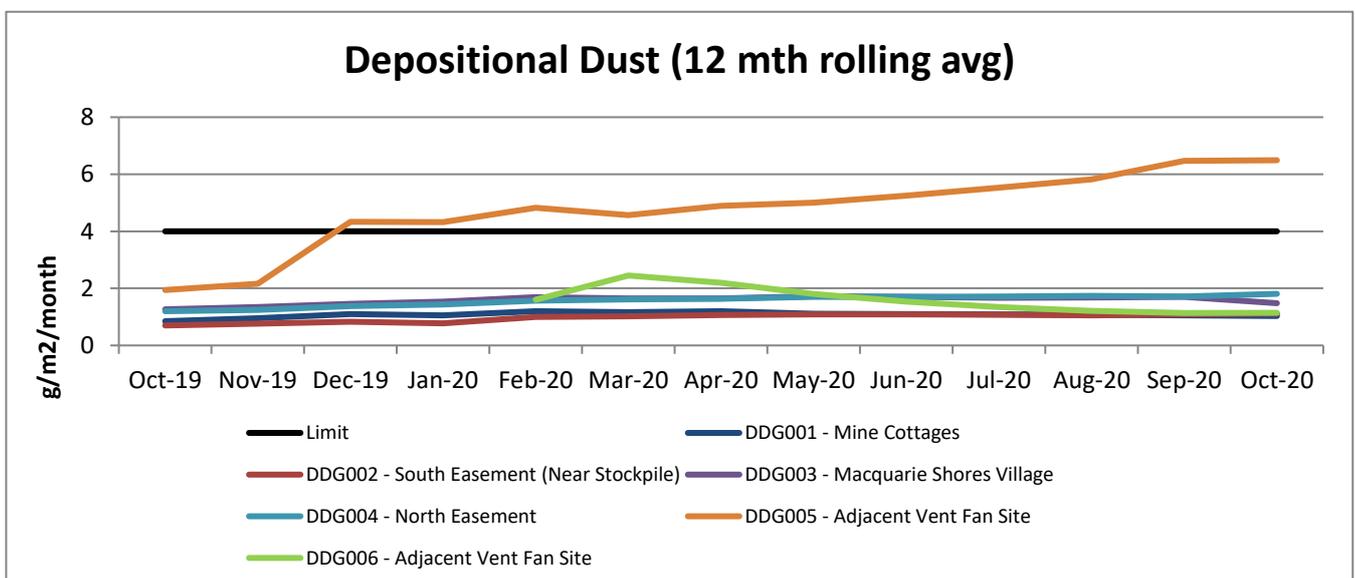
Air Quality - Depositional Dust

Monthly depositional dust results are shown below. Dust deposition gauges were sampled and analysed in accordance with the project approval, CVC Air Quality Management Plan and relevant Australian Standards.

October 2020	
EPL	1770
Limit	4g/m ² /month
Sampling Date	07/09/2020 to 07/09/2020
Site	Insoluble Matter (g/m ² /month)
DDG001	0.5
DDG002	0.7
DDG003	0.9
DDG004	2.3
DDG005	0.8
Notes: - For site locations refer to Chain Valley Colliery Air Quality Management Plan.	

For the period of October 2020, no exceedances of depositional dust criteria were identified for Chain Valley Colliery.

A 12 month rolling average of depositional dust concentrations has been presented below, it is noted that due to frequent contamination of dust gauge DDG005 and the bushfire events occurring in December 2019 and January 2020 the rolling average exceeds criteria. DPIE have been notified of each contamination event to the dust gauge. Dust Gauges DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery. DDG005 was intended to represent the fan site, subsequently, DDG006 was installed in a location still considered representative of the CVC vent fan site, but not subject to contamination. Delta Coal currently have a submission with DPIE to amend the Chain Valley Colliery Air Quality Management Plan to replace location DDG005 with DDG006.



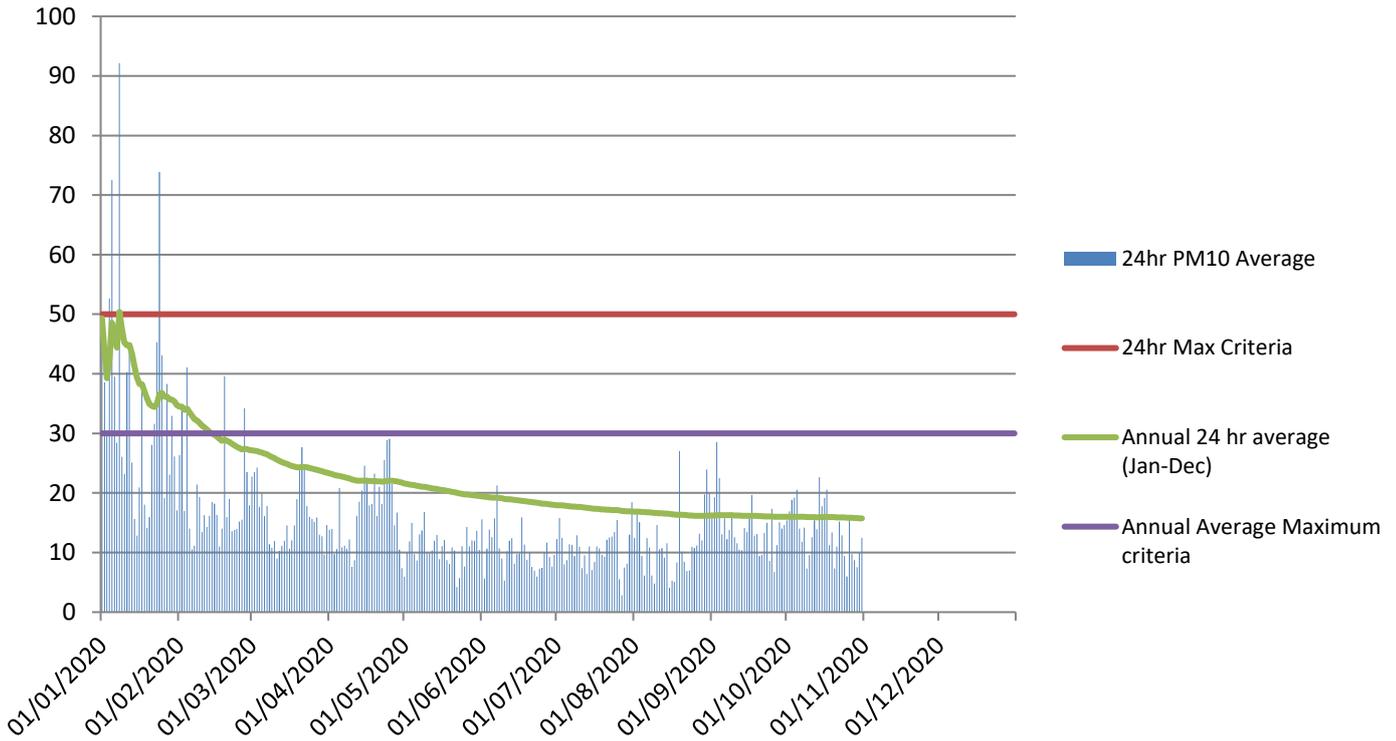
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Air Quality – PM₁₀

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

Chain Valley Colliery - 2020 TEOM PM₁₀ (ug/m³)



Annual 24hr PM₁₀ average maximum criteria for October 2020 is 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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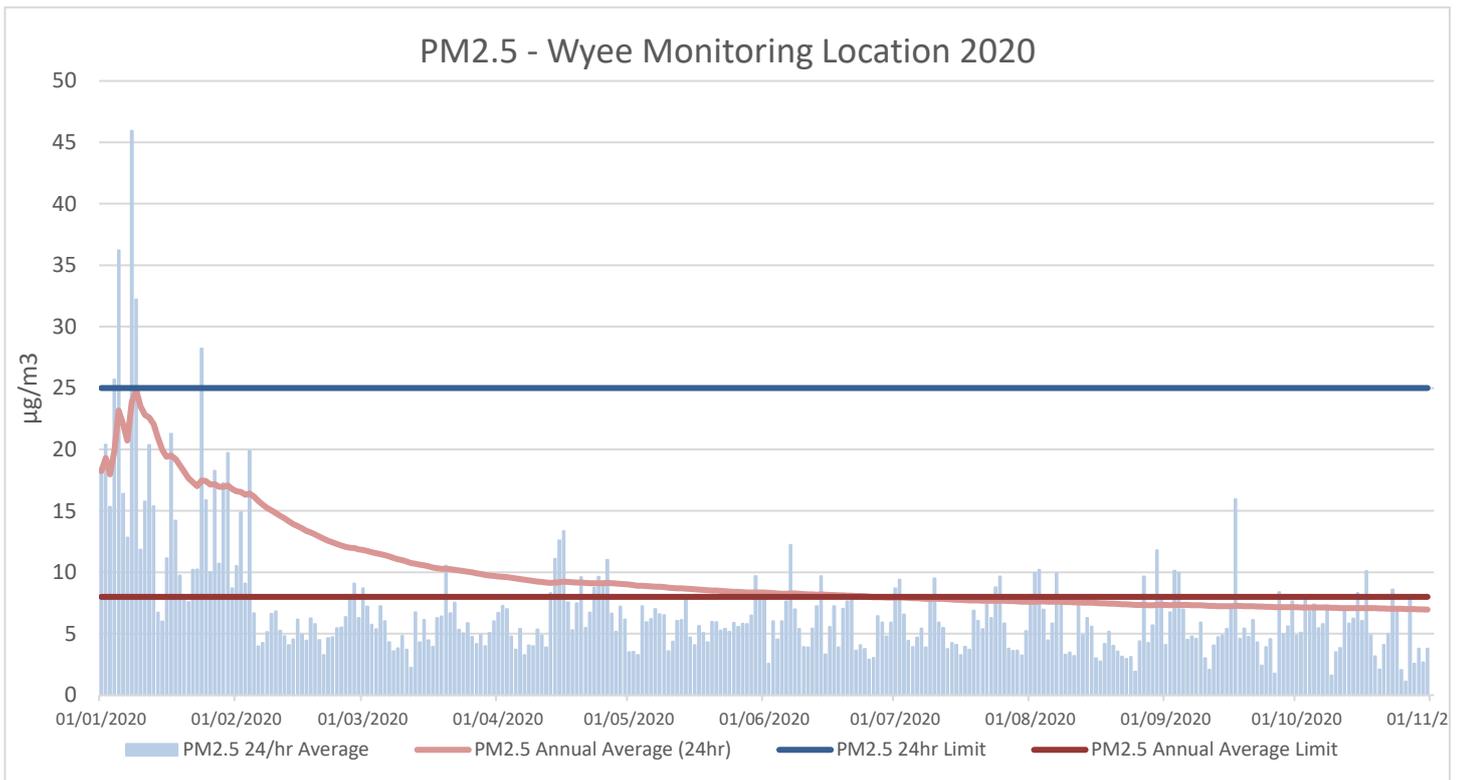
Variable	October	Total	Valid
A/C Temp	99.4%	8928	8876
A1	99.4%	8928	8876
A1_Scaled	99.4%	8928	8876
Bypass Flow	99.4%	8928	8876
Cap Temp	99.4%	8928	8876
Case Temp	99.4%	8928	8876
Config	99.4%	8928	8876
Dew Point	99.4%	8928	8876
Dig-In	99.4%	8928	8876
Dig-Latch	99.4%	8928	8876
ESN	99.4%	8928	8876
Filter 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 $\mu\text{g}/\text{m}^3$ and 8 $\mu\text{g}/\text{m}^3$ 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 Mannering Colliery is presented below for the year to date. (EPA ID no. 26).

Monthly Weather Data			
Licensee	Great Southern Energy Pty Ltd		
Location	Mannering 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