



Chain Valley Colliery Monthly Website Report – November 2020

Site:	Chain Valley Colliery
Department:	Technical Services
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Prepared by:	Lachlan McWha
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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 30th of November 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 **November 2020**

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

Steel River Testing - Dust Deposition Report **November 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 November 2020 monthly surface water sampling at Chain Valley Colliery, EPA Discharge Point 1 are presented below.

November 2020	
EPL	1770
Licensee	Great Southern Energy Pty Ltd
Premises	Chain Valley Colliery
Date Sampled	24-Nov-20
Date Obtained	01-Dec-20
Date Reported	November
Sampling Point	LDP1

Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	2
Enterococci	col/100mL	-	140
Faecal Coliforms	CFU/100mL	200	<2
pH	pH	6.5-8.5	7.74
Total Sus. Solids	mg/L	50	6

As detailed above, results for monthly surface water sampling did not exceed 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 November 2020 did not exceed the relevant limit.

November 2020	
EPL	1770
Licensee	Great Southern 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
1/11/2020	kL	6517
2/11/2020	kL	2230
3/11/2020	kL	3186
4/11/2020	kL	3648
5/11/2020	kL	6039
6/11/2020	kL	6882
7/11/2020	kL	9671
8/11/2020	kL	9069
9/11/2020	kL	6560
10/11/2020	kL	9708
11/11/2020	kL	7462
12/11/2020	kL	7726
13/11/2020	kL	7142
14/11/2020	kL	8765
15/11/2020	kL	4790
16/11/2020	kL	4115
17/11/2020	kL	2343
18/11/2020	kL	4836
19/11/2020	kL	6546
20/11/2020	kL	6568
21/11/2020	kL	6569
22/11/2020	kL	6565
23/11/2020	kL	6535
24/11/2020	kL	6507
25/11/2020	kL	5939
26/11/2020	kL	5812
27/11/2020	kL	6504
28/11/2020	kL	6492
29/11/2020	kL	6492
30/11/2020	kL	6499

Average	kL	6257
Minimum	kL	2230
Maximum	kL	9708

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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 (WAL 41508) permitting the extraction of 4,443 megalitres per water year (financial year calander) with a roll-over entitlement up to 8,886 megalitres.

CVC Groundwater to Surface Totals FY2020-2021		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative 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	187.72	678.21
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.

November 2020	
EPL	1770
Limit	4g/m ² /month
Sampling Date	07/10/2020 to 06/11/2020
Site	Insoluble Matter (g/m²/month)
DDG001	0.6
DDG002	0.8
DDG003	0.9
DDG004	0.8
DDG005	73.8
Notes: - For site locations refer to Chain Valley Colliery Air Quality Management Plan.	

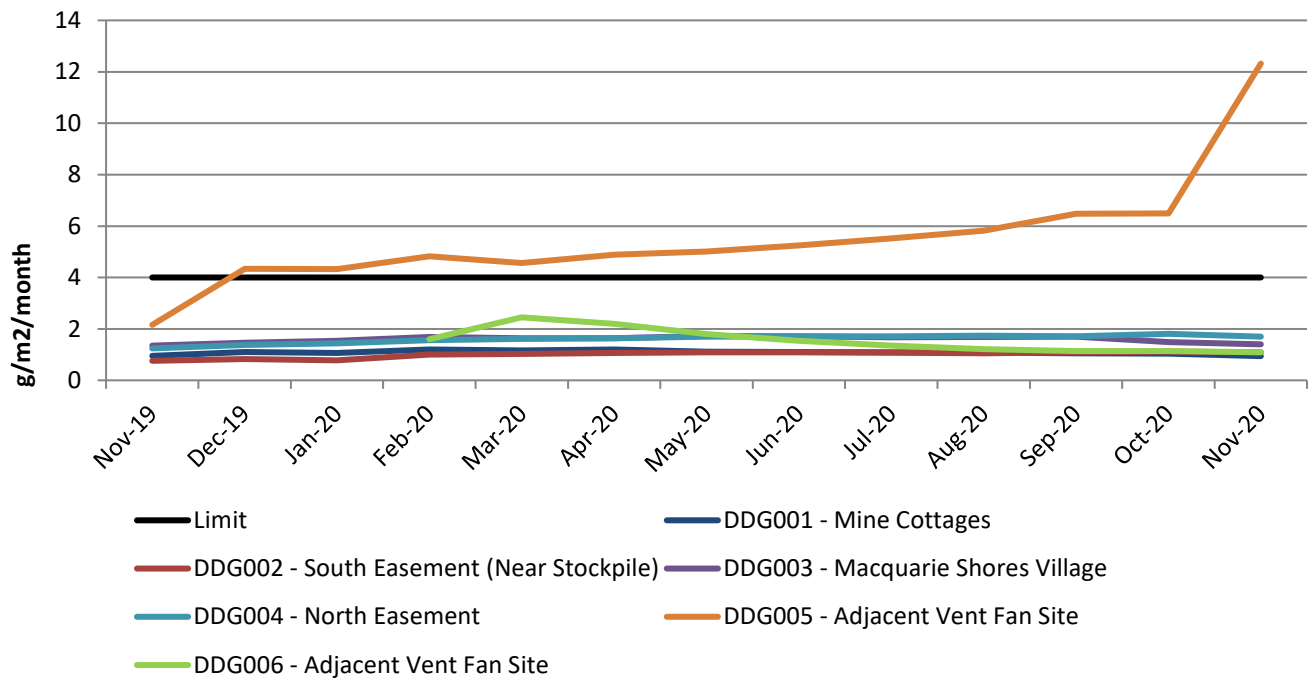
For the period of November 2020, depositional dust gauge DDG005 significantly exceeded monthly limits and has frequently been impacted by contamination un-related to mining operations. Visual analysis undertaken by the laboratory analysing the sample indicated the sample was contaminated. The independent sampler noted within the field sample description that the water appeared heavily contaminated by bird droppings and that heavy accumulations of bird droppings were present around the dust gauge.

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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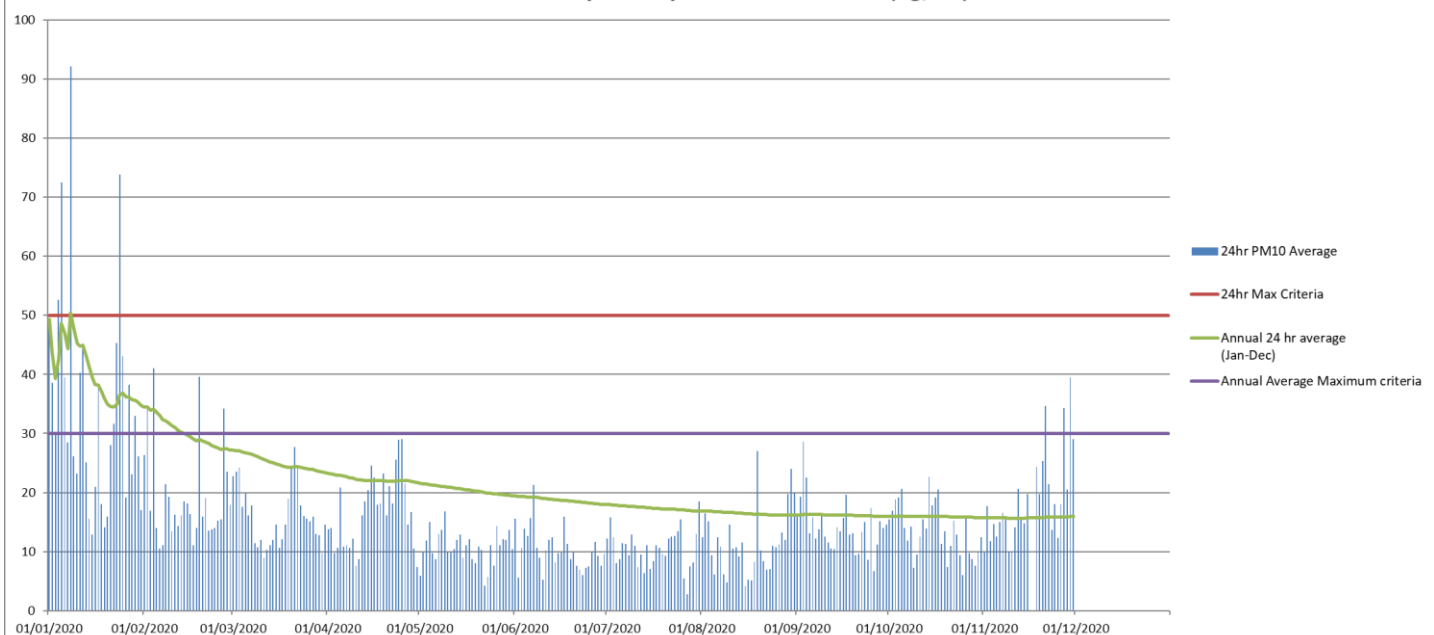
Depositional Dust (12 mth rolling avg)



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 November 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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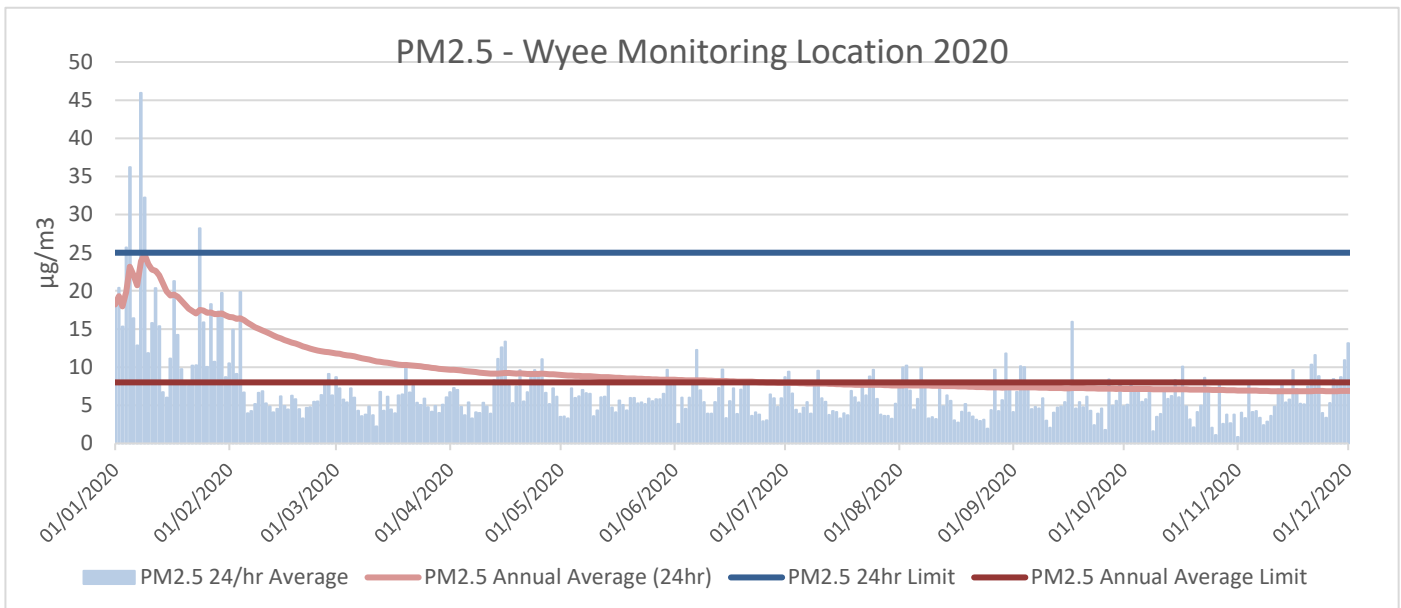
Variable	November	Total	Valid
A/C Temp	100%	8640	8640
A1	100%	8640	8640
A1_Scaled	100%	8640	8640
Bypass Flow	100%	8640	8640
Cap Temp	100%	8640	8640
Case Temp	100%	8640	8640
Config	100%	8640	8640
Dew Point	100%	8640	8640
Dig-In	100%	8640	8640
Dig-Latch	100%	8640	8640
ESN	100%	8640	8640
Filter Freq	100%	8640	8640
Filter Load	100%	8640	8640
Humidity	100%	8640	8640
MC	100%	8640	8640
MC 12Hr	100%	8640	8640
MC 1Hr	100%	8640	8640
MC 24Hr	100%	8640	8640
MC 30min	100%	8640	8640
MC 8Hr	100%	8640	8640
MC Total	100%	8640	8640
Mobile Signal	100%	8640	8640
Noise	100%	8640	8640
PM10 Flow	100%	8640	8640
Pressure	100%	8640	8640
Site	0.0%	8640	0
Temperature	100%	8640	8640
Tube Temp	100%	8640	8640
Vac Pressure	100%	8640	8640
Volts	100%	8640	8640

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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, Wyee. 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 November 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:

- November 2020 period was 83%; and
- 2020 period to current data availability has been 96%.

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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
Nov-20	54.8	9.9	41.4

Variable	November	Total	Valid
10m Temp	100%	2880	2880
2m Temp	100%	2880	2880
A1	100%	2880	2880
A1_Scaled	100%	2880	2880
Assumed Temp	100%	2880	2880
Barometric	100%	2880	2880
Config	100%	2880	2880
Daily Evap	100%	2880	2880
Daily Rain	100%	2880	2880
Delta T	100%	2880	2880
Dew Point	100%	2880	2880
Dig-In	100%	2880	2880
Dig-Latch	100%	2880	2880
ESN	100%	2880	2880
FDI	100%	2880	2880
Heat Index	100%	2880	2880
Humidity	100%	2880	2880
Mobile Signal	100%	2880	2880
Rain	100%	2880	2880
Raw Evap	100%	2880	2880
S Class	100%	2880	2880
Scalar WS	100%	2880	2880
Sigma	100%	2880	2880
Site	0.0%	2880	0
Solar Radiation	100%	2880	2880
Vector WD	100%	2880	2880
Vector WS	100%	2880	2880
Volts	100%	2880	2880
Wind Chill	100%	2880	2880
Wind Direction	100%	2880	2880
Wind Speed	100%	2880	2880
WS Avg	100%	2880	2880
WS Gust	100%	2880	2880