



# Chain Valley Colliery Monthly Website Report – January 2021

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<b>Site:</b>	Chain Valley Colliery
<b>Department:</b>	Technical Services
<b>Report Title:</b>	Monthly Environmental Website Report – January 2021
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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 month of January 2021.

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	<a href="http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50980&amp;SYSUID=1&amp;LICID=1770">http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50980&amp;SYSUID=1&amp;LICID=1770</a>

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.

### 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;
- 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.

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## References

ALS Group - Monthly Water Monitoring Results **January 2021**

ALS Water - Report of Analysis **January 2021**

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

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 January 2021 monthly surface water sampling at Chain Valley Colliery, EPA Discharge Point 1 are presented below.

January 2021	
EPL	1770
Licensee	Great Southern Energy Pty Ltd
Premises	Chain Valley Colliery
Date Sampled	20-Jan-21
Date Obtained	27-Jan-21
Date Reported	January
Sampling Point	LDP1

Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococci	col/100mL	-	25
Faecal Coliforms	CFU/100mL	200	~20
pH	pH	6.5-8.5	7.56
Total Sus. Solids	mg/L	50	<5
Electrical Conductivity	µS/cm	-	30300

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 January 2021 did not exceed the relevant limit.

January 2021	
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
01/01/2021	kL	8863.72
02/01/2021	kL	5808.89
03/01/2021	kL	9848.94
04/01/2021	kL	7607.81
05/01/2021	kL	8032.95
06/01/2021	kL	3755.85
07/01/2021	kL	4609.15
08/01/2021	kL	5915.31
09/01/2021	kL	6280.99
10/01/2021	kL	6402.95
11/01/2021	kL	6234.84
12/01/2021	kL	6198.89
13/01/2021	kL	6192.24
14/01/2021	kL	6328.75
15/01/2021	kL	6030.28
16/01/2021	kL	6225.92
17/01/2021	kL	6146.21
18/01/2021	kL	6130.92
19/01/2021	kL	6104.14
20/01/2021	kL	6186.03
21/01/2021	kL	8025.92
22/01/2021	kL	6550.85
23/01/2021	kL	6904.62
24/01/2021	kL	5172.08
25/01/2021	kL	7041.42
26/01/2021	kL	5331.80
27/01/2021	kL	4668.14
28/01/2021	kL	7578.70
29/01/2021	kL	6215.85
30/01/2021	kL	8464.14
31/01/2021	kL	8461.68

Average	kL	6558.71
Minimim	kL	3755.85
Maximum	kL	9848.94

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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.

<b>CVC Groundwater to Surface Totals FY2020-2021</b>		
<b>Date (month)</b>	<b>GW Discharge (ML/Month)</b>	<b>GW Discharge (Cumulative ML YTD)</b>
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	205.88	884.09
Jan-21	195.72	1079.81
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.

January 2021	
<b>EPL</b>	1770
<b>Limit</b>	4g/m <sup>2</sup> /month / Annum
<b>Sampling Date</b>	07/12/2020 to 08/01/2021
<b>Site</b>	<b>Insoluble Matter (g/m<sup>2</sup>/month)</b>
DDG001	0.5
DDG002	0.5
DDG003	0.4
DDG004	0.3
DDG005	5.6
DDG006 (proposed DDG005 Replacement)	0.5
Notes: - For site locations refer to Chain Valley Colliery Air Quality Management Plan. DDG005 deposition considered to contain 80% minerals and 20% contamination.	

A 12 month rolling average of depositional dust concentrations has been presented below. 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 however was frequently contaminated, subsequently, DDG006 was installed in a location more representative of the CVC vent fan site. Delta Coal currently have a submission with DPIE to amend the Chain Valley Colliery Air Quality Management Plan to replace location DDG005 with DDG006.

Delta Coal submitted a detailed incident report for the exceedance of annual average depositional dust limits at DDG005 to the Department of Planning, Industry and Environment (DPIE) on the 28<sup>th</sup> January 2021.

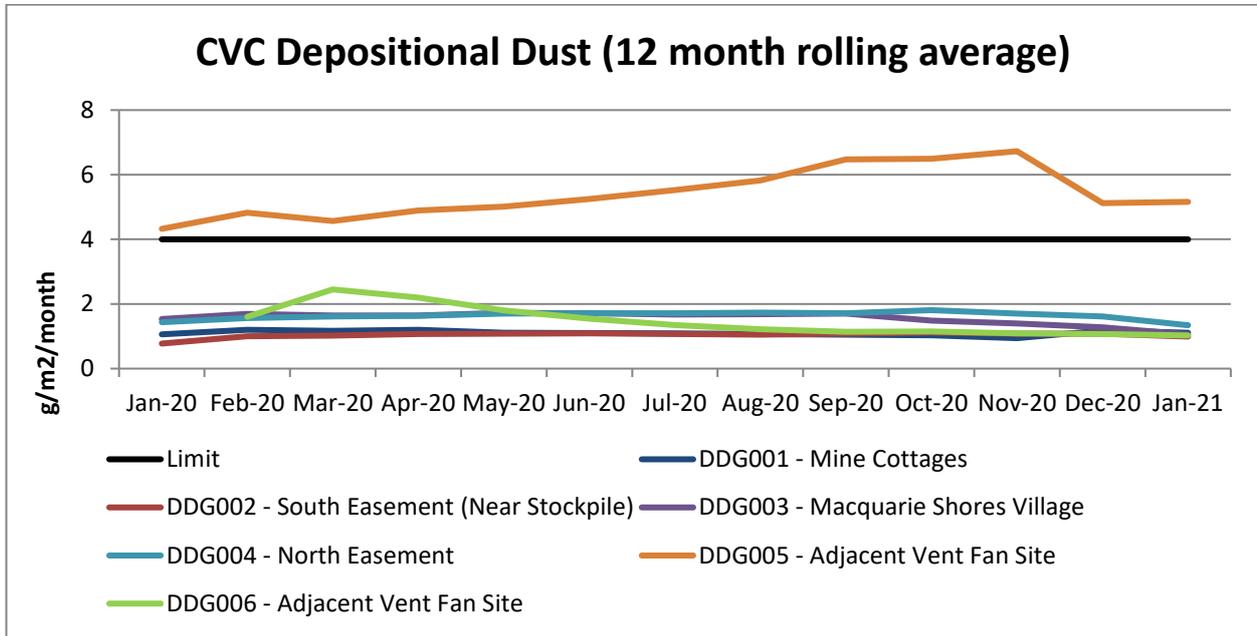
The report detailed the following, which was noted by the DPIE:

- DDG005 has been contaminated with organic mater on 7 out of 12 monitoring instances during the 2020 reporting period;
- DDG006 was installed in February 2020 within the same general location as DDG005 to provide comparative results, and has continuously returned Deposited Dust levels below the 4 g/m<sup>2</sup>/month limit;
- DDG006 is considered more representative of potential emissions from the Chain Valley Colliery ventilation site; and

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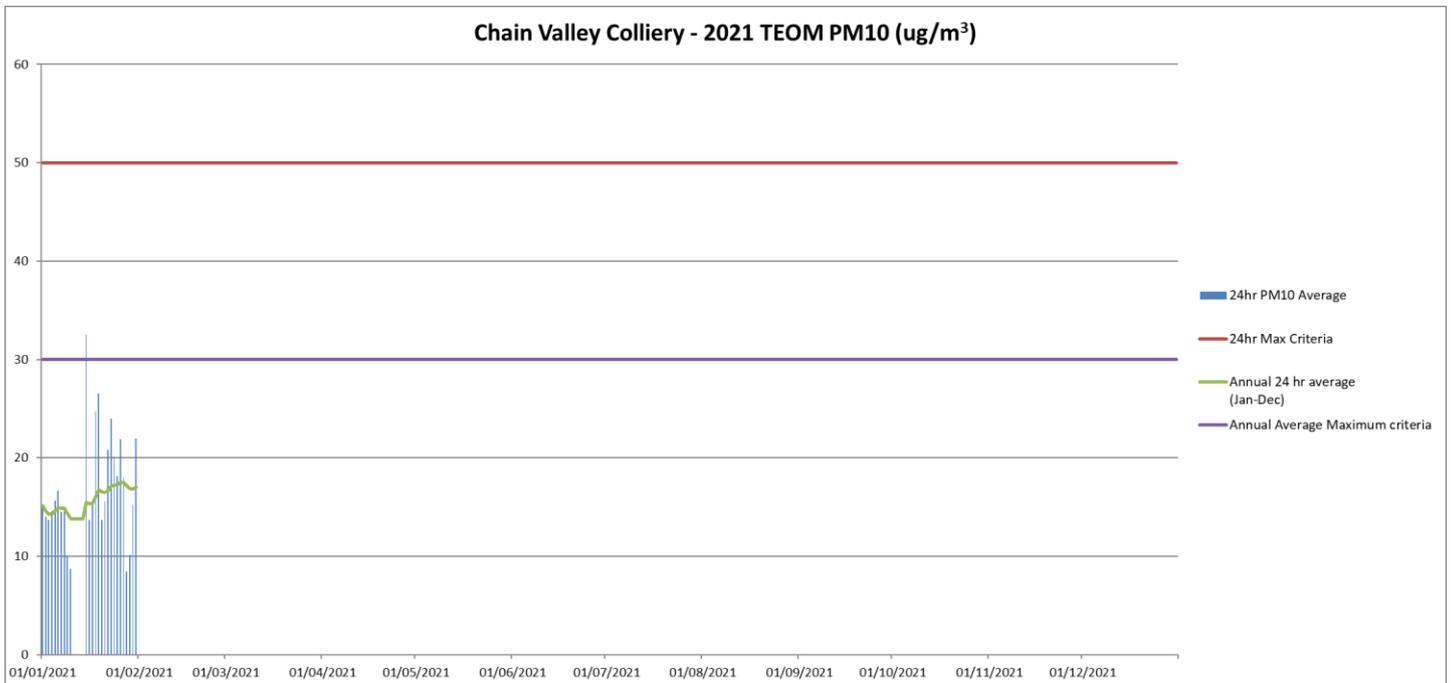
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- Chain Valley Colliery has submitted an amended Air Quality and Greenhouse Gas Management Plan to the Department which proposes to replace DDG005 with DDG006.



## 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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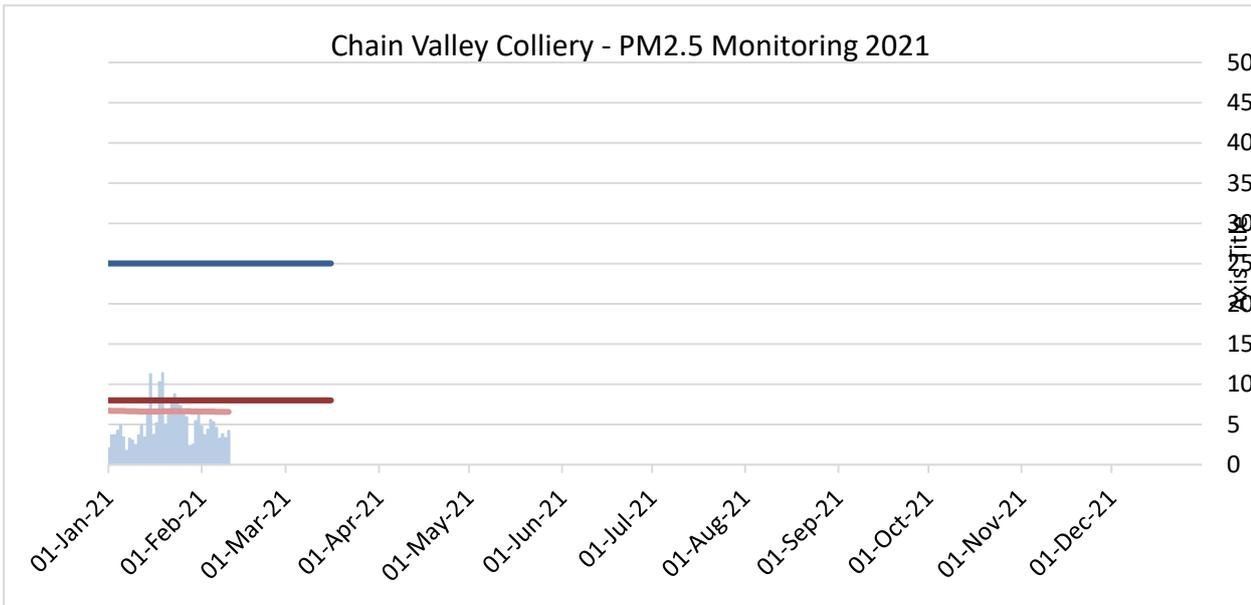
Variable	January	Total	Valid
A/C Temp	92.9%	8928	8298
A1	92.9%	8928	8298
A1_Scaled	92.9%	8928	8298
Bypass Flow	92.9%	8928	8298
Cap Temp	92.9%	8928	8298
Case Temp	92.9%	8928	8298
Config	92.9%	8928	8298
Dew Point	92.9%	8928	8298
Dig-In	92.9%	8928	8298
Dig-Latch	92.9%	8928	8298
ESN	92.9%	8928	8298
Filter 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 has been 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 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	2 <sup>nd</sup> Febraury 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