



# Chain Valley Colliery Monthly Website Report – February 2021

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<b>Site:</b>	Chain Valley Colliery
<b>Department:</b>	Technical Services
<b>Report Title:</b>	Monthly Environmental Website Report – February 2021
<b>Prepared by:</b>	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 month of February 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 **February 2021**

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

Steel River Testing - Dust Deposition Report **February 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 February 2021 monthly surface water sampling at Chain Valley Colliery, EPA Discharge Point 1 are presented below.

February 2021	
EPL	1770
Licensee	Great Southern Energy Pty Ltd
Premises	Chain Valley Colliery
Date Sampled	16-Feb-21
Date Obtained	23-Feb-21
Sampling Point	LDP1

Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococci	col/100mL	-	560
Faecal Coliforms	CFU/100mL	200	180
pH	pH	6.5-8.5	7.67
Total Sus. Solids	mg/L	50	27
Electrical Conductivity	µS/cm	-	23600

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 February 2021 did not exceed the relevant limit.

February 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
01/02/2021	kL	6011.34
02/02/2021	kL	7771.07
03/02/2021	kL	4614.09
04/02/2021	kL	5776.75
05/02/2021	kL	6047.57
06/02/2021	kL	6091.47
07/02/2021	kL	6057.32
08/02/2021	kL	6017.49
09/02/2021	kL	6886
10/02/2021	kL	9010.18
11/02/2021	kL	5117.69
12/02/2021	kL	6239.36
13/02/2021	kL	6671.19
14/02/2021	kL	6438.01
15/02/2021	kL	6425.01
16/02/2021	kL	8990.4
17/02/2021	kL	6408.35
18/02/2021	kL	6408.07
19/02/2021	kL	6874.08
20/02/2021	kL	7858.42
21/02/2021	kL	9423.07
22/02/2021	kL	6230.87
23/02/2021	kL	6655.27
24/02/2021	kL	6940.75
25/02/2021	kL	6317.28
26/02/2021	kL	7405.59
27/02/2021	kL	8548.79
28/02/2021	kL	5395.63

Average	kL	6736.83
Minimum	kL	4614.09
Maximum	kL	9423.07

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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	169.2	169.2
Aug-20	170.2	339.4
Sep-20	145.7	485.2
Oct-20	161.8	647.0
Nov-20	180.8	827.8
Dec-20	220.0	1047.8
Jan-21	192.5	1240.3
Feb-21	187.5	1427.9
Mar-21		
Apr-21		
May-21		
Jun-21		

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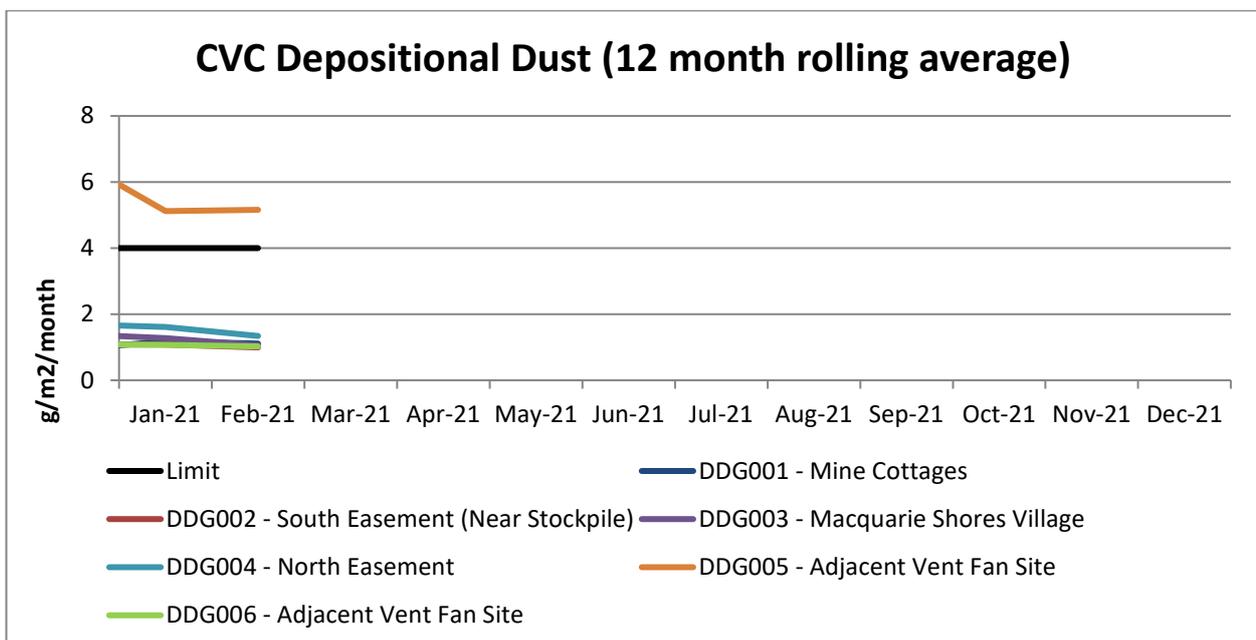
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## Air Quality - Depositional Dust

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.

February 2021	
<b>EPL</b>	1770
<b>Limit</b>	4g/m <sup>2</sup> /month / Annum
<b>Sampling Date</b>	08/01/2021 to 08/02/2021
<b>Site</b>	<b>Insoluble Matter (g/m<sup>2</sup>/month)</b>
DDG001	0.4
DDG002	0.7
DDG003	0.5
DDG004	0.6
DDG005	4.8
DDG006 (proposed DDG005 Replacement)	0.3
Notes:	
- For site locations refer to Chain Valley Colliery Air Quality Management Plan. DDG005 deposition considered to contain dirt (70%), insects (10%), polysaccharide slime (20%), coal content was assessed to be < 5%.	

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.

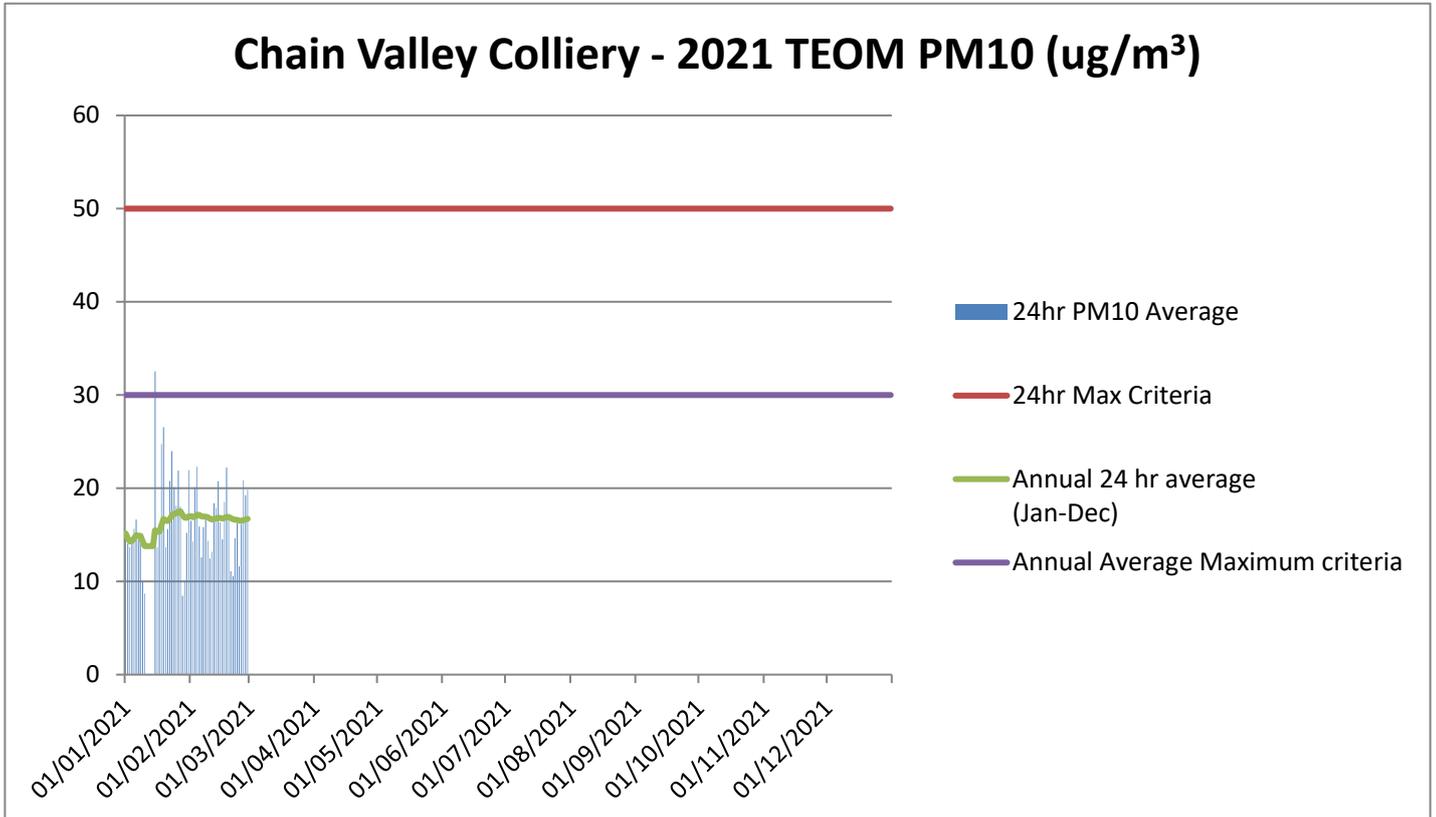


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## Air Quality – PM<sub>10</sub>

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 February 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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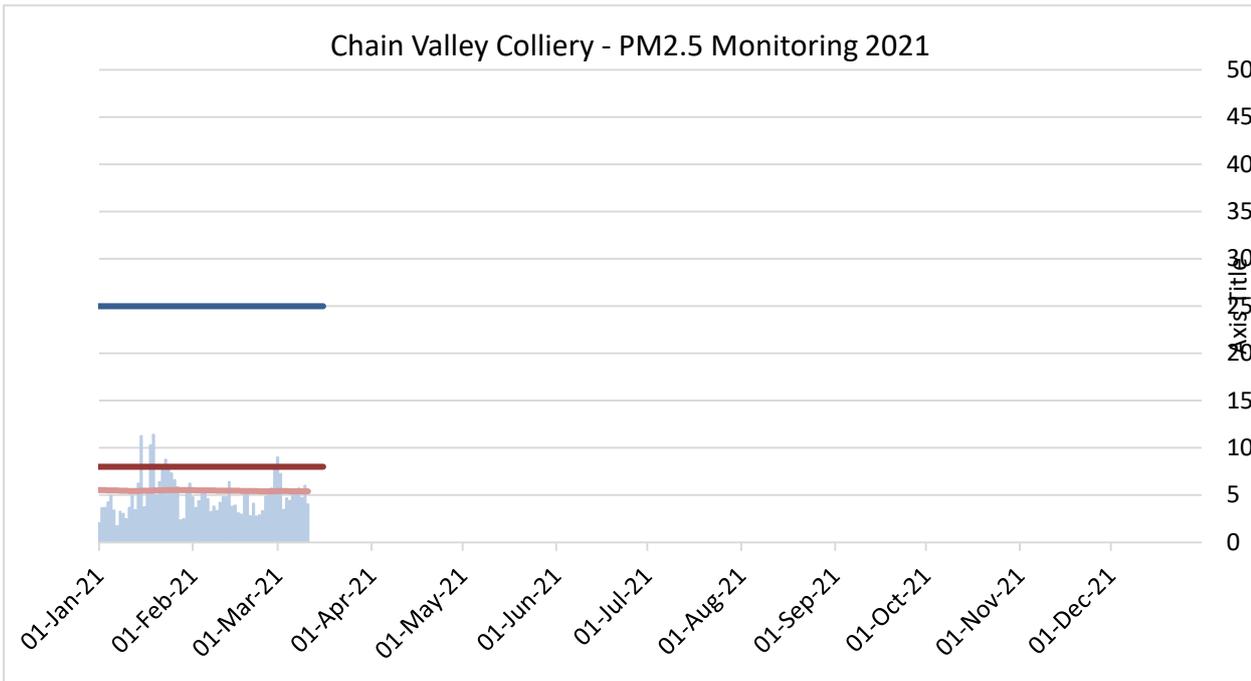
Variable	February	Total	Valid
A/C Temp	100%	8064	8064
A1	100%	8064	8064
A1_Scaled	100%	8064	8064
Bypass Flow	100%	8064	8064
Cap Temp	100%	8064	8064
Case Temp	100%	8064	8064
Config	100%	8064	8064
Dew Point	100%	8064	8064
Dig-In	100%	8064	8064
Dig-Latch	100%	8064	8064
ESN	100%	8064	8064
Filter Freq	100%	8064	8064
Filter Load	100%	8064	8064
Humidity	100%	8064	8064
MC	100%	8064	8064
MC 12Hr	100%	8064	8064
MC 1Hr	100%	8064	8064
MC 24Hr	100%	8064	8064
MC 30min	100%	8064	8064
MC 8Hr	100%	8064	8064
MC Total	100%	8064	8064
Mobile Signal	100%	8064	8064
Noise	100%	8064	8064
PM10 Flow	100%	8064	8064
Pressure	100%	8064	8064
Site	0.0%	8064	0
Temperature	100%	8064	8064
Tube Temp	100%	8064	8064
Vac Pressure	100%	8064	8064
Volts	100%	8064	8064

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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 is 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 February 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:

- February data availability was 98%; and
- 2021 year to date data availability has been 99.1%.

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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 2021			
Licensee	Great Southern Energy Pty Ltd		
Location	Mannering Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	12 <sup>th</sup> March 2021		
Month	Total Rainfall/Month mm	Min Temp	Max Temp
Jan-21	108.4	13.9	37.3
Feb-21	108.8	13.9	33.1

Variable	February	Total	Valid
10m Temp	100%	2688	2688
2m Temp	100%	2688	2688
A1	100%	2688	2688
A1_Scaled	100%	2688	2688
Assumed Temp	100%	2688	2688
Barometric	100%	2688	2688
Config	100%	2688	2688
Daily Evap	100%	2688	2688
Daily Rain	100%	2688	2688
Delta T	100%	2688	2688
Dew Point	100%	2688	2688
Dig-In	100%	2688	2688
Dig-Latch	100%	2688	2688
ESN	100%	2688	2688
FDI	100%	2688	2688
Heat Index	100%	2688	2688
Humidity	100%	2688	2688
Mobile Signal	100%	2688	2688
Rain	100%	2688	2688
Raw Evap	100%	2688	2688
S Class	100%	2688	2688
Scalar WS	100%	2688	2688
Sigma	100%	2688	2688
Site	0.0%	2688	0
Solar Radiation	100%	2688	2688
Vector WD	100%	2688	2688
Vector WS	100%	2688	2688
Volts	100%	2688	2688
Wind Chill	100%	2688	2688
Wind Direction	100%	2688	2688
Wind Speed	100%	2688	2688
WS Avg	100%	2688	2688
WS Gust	100%	2688	2688