



# Chain Valley Colliery Monthly Website Report – March 2021

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<b>Site:</b>	Chain Valley Colliery
<b>Department:</b>	Technical Services
<b>Report Title:</b>	Monthly Environmental Website Report – March 2021
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# Monthly Website Report

CVC Monthly Environmental Report – March 2021

## Table of Contents

Introduction .....	3
Scope.....	4
Definitions.....	4
References .....	5
Monitoring Results.....	5
Water – Quality .....	5
Water – Volume.....	6
Water – Groundwater Discharge.....	7
Air Quality - Depositional Dust .....	8
Air Quality – PM <sub>10</sub> .....	9
Air Quality – PM <sub>2.5</sub> .....	10
Weather Data .....	11

# Monthly Website Report

CVC Monthly Environmental Report – March 2021

## 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 March 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.

# Monthly Website Report

CVC Monthly Environmental Report – March 2021

## References

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

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

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

March 2021			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	26-Mar-21		
Date Obtained	5-Apr-21		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococci	col/100mL	-	72
Faecal Coliforms	CFU/100mL	200	21
pH	pH	6.5-8.5	7.53
Total Sus. Solids	mg/L	50	9
Electrical Conductivity	µS/cm	-	27800

During a significant rainfall event spanning between the 17<sup>th</sup> to 22<sup>nd</sup> March 2021 where approximately 400 mm of rainfall occurred, CVC's spillway discharge point (LDP 27) was breached twice first on the 18<sup>th</sup> March and again on the 21<sup>st</sup> March. In accordance with EPL 1770, samples of the discharge water were collected daily while discharge occurred from LDP 27. Exceedances of EPL 1770 water quality criteria were identified (and immediately reported to the NSW EPA and Department of Planning, Industry and Environment) during both discharges. Water quality results from samples collected are presented below.

Sample ID	Date and Time	pH (pH Units)	Faecal Coliform (CFU/100mL)	Electrical Conductivity (µS/cm)	Enterococcus (CFU/100mL)	Total Suspended Solids (mg/L)
EPL 1770 Limit (Point 1 and Point 27)		6.5 - 8.5	200	N/A	N/A	50
EPA Point 27	18/03/2021 12:40pm	7.73	~4000	8990	1100	158
EPA Point 27	21/03/2021 08:00AM	7.79	1500	~730	860	54

# Monthly Website Report

## CVC Monthly Environmental Report – March 2021

### Water – Volume

Monthly water volumes discharged from the site are summarised below.

The daily water volumes at EPA Discharge Point 1 (LDP1) and EPA Discharge Point 27 (LDP27) during March 2021 exceeded the volumetric limit on the 18<sup>th</sup> and 21<sup>st</sup> of March during significant rainfall events.

March 2021	
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	LDP1 Volume	LDP27 Volume
01/03/2021	kL	8669.05	0
02/03/2021	kL	4951.36	0
03/03/2021	kL	6008.49	0
04/03/2021	kL	6964.97	0
05/03/2021	kL	4676.22	0
06/03/2021	kL	5583.76	0
07/03/2021	kL	5687.16	0
08/03/2021	kL	5645.69	0
09/03/2021	kL	5701.53	0
10/03/2021	kL	5269.07	0
11/03/2021	kL	5573.75	0
12/03/2021	kL	5684.55	0
13/03/2021	kL	5220.69	0
14/03/2021	kL	5666.38	0
15/03/2021	kL	7108.92	0
16/03/2021	kL	6781.4	0
17/03/2021	kL	7538.84	0
18/03/2021	kL	<b>15478.09</b>	<b>77</b>
19/03/2021	kL	4901.84	0
20/03/2021	kL	11717.55	0
21/03/2021	kL	<b>13431.67</b>	<b>26</b>
22/03/2021	kL	5030.65	0
23/03/2021	kL	7316.21	0
24/03/2021	kL	9752.74	0
25/03/2021	kL	7818.95	0
26/03/2021	kL	8183.32	0
27/03/2021	kL	4721.34	0
28/03/2021	kL	2482.55	0
29/03/2021	kL	5021.97	0
30/03/2021	kL	4519.98	0
31/03/2021	kL	5602.95	0

Average	kL	6,733
Minimum	kL	2,483
Maximum	kL	<b>15,478</b>

# Monthly Website Report

## CVC Monthly Environmental Report – March 2021

### Water – Groundwater Discharge

Groundwater discharged from underground workings to the CVC sedimentation ponds 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	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	157.5	1585.3
Apr-21		
May-21		
Jun-21		

# Monthly Website Report

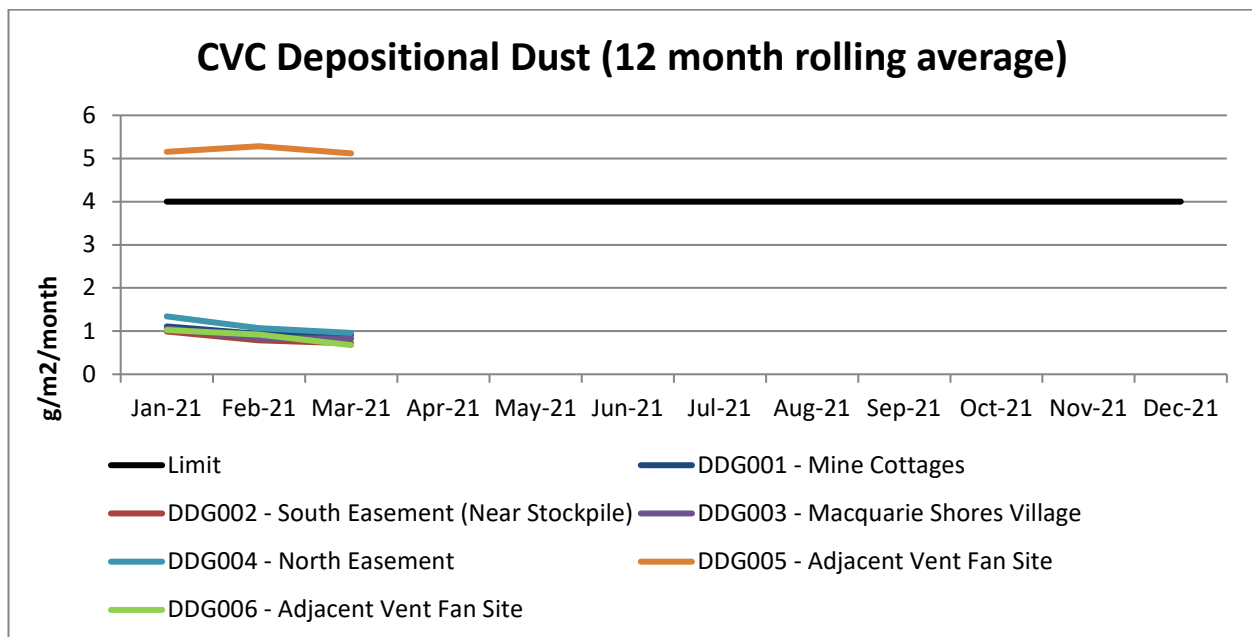
## CVC Monthly Environmental Report – March 2021

### 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.

March 2021	
<b>EPL</b>	1770
<b>Limit</b>	4g/m <sup>2</sup> /month / Annum
<b>Sampling Date</b>	08/02/2021 to 12/03/2021
<b>Site</b>	<b>Insoluble Matter (g/m<sup>2</sup>/month)</b>
DDG001	0.4
DDG002	0.6
DDG003	0.6
DDG004	1.1
DDG005	0.2
DDG006 (proposed DDG005 Replacement)	0.4
Notes:	
- For site locations refer to Chain Valley Colliery Air Quality Management Plan.	

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.





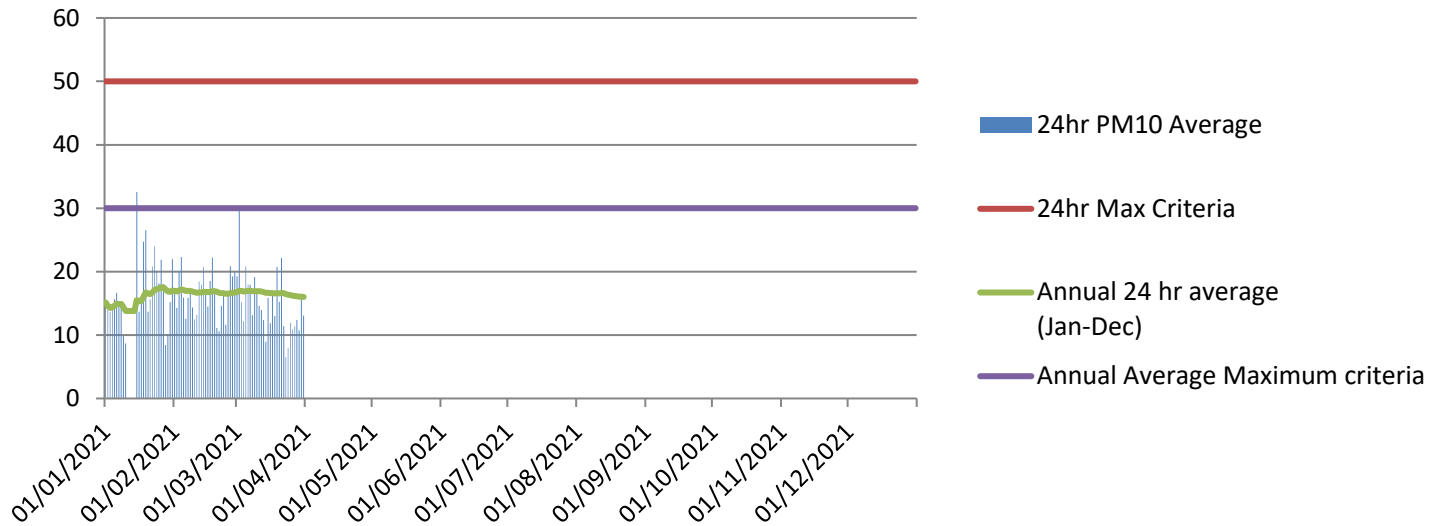
# Monthly Website Report

CVC Monthly Environmental Report – March 2021

## 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.

### Chain Valley Colliery - 2021 TEOM PM10 (ug/m<sup>3</sup>)



Annual 24hr PM<sub>10</sub> average maximum criteria for March 2021 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.

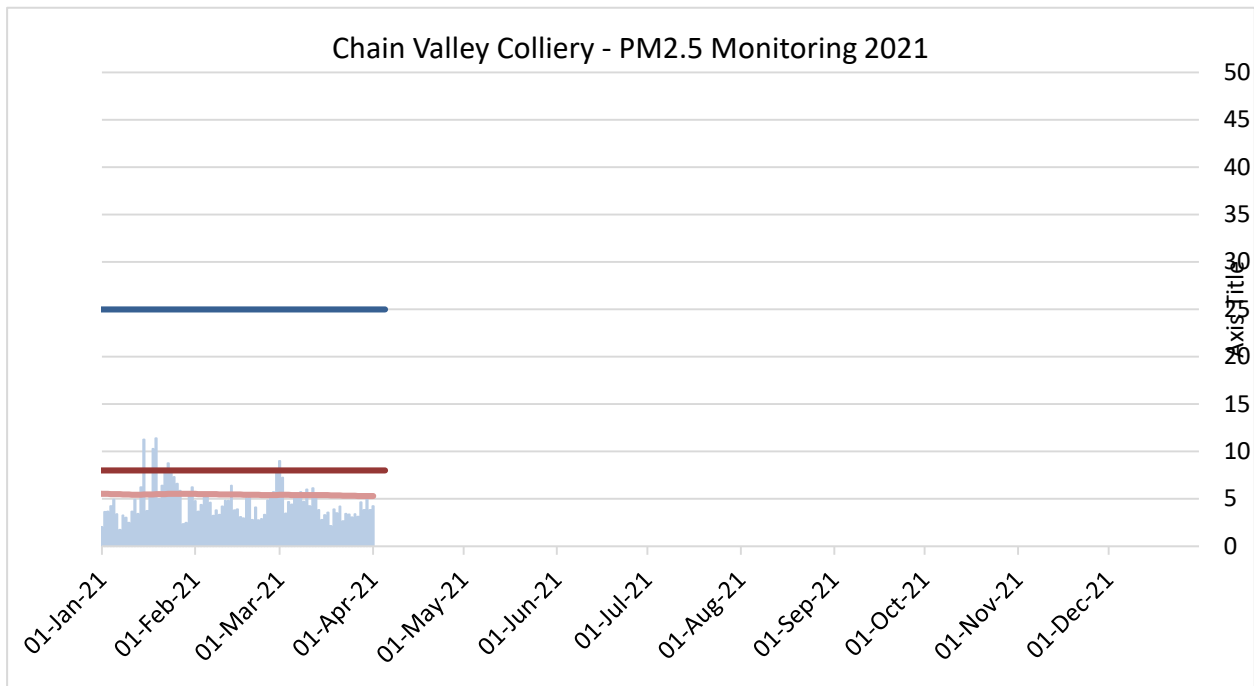
Variable	March	Total	Valid
A/C Temp	100%	8928	8928
A1	100%	8928	8928
A1_Scaled	100%	8928	8928
Bypass Flow	100%	8928	8928
Cap Temp	100%	8928	8928
Case Temp	100%	8928	8928
Config	100%	8928	8928
Dew Point	100%	8928	8928
Dig-In	100%	8928	8928
Dig-Latch	100%	8928	8928
ESN	100%	8928	8928
Filter Freq	100%	8928	8928
Filter Load	100%	8928	8928
Humidity	100%	8928	8928
MC	100%	8928	8928
MC 12Hr	100%	8928	8928
MC 1Hr	100%	8928	8928
MC 24Hr	100%	8928	8928
MC 30min	100%	8928	8928
MC 8Hr	100%	8928	8928
MC Total	100%	8928	8928
Mobile Signal	100%	8928	8928
Noise	100%	8928	8928
PM10 Flow	100%	8928	8928
Pressure	100%	8928	8928
Site	0.0%	8928	0
Temperature	100%	8928	8928
Tube Temp	100%	8928	8928
Vac Pressure	100%	8928	8928
Volts	100%	8928	8928

# Monthly Website Report

CVC Monthly Environmental Report – March 2021

## 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 by Delta Coal. 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 March 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:

- March 2021 data availability was 95%; and
- 2021 year to date data availability has been 98%.

# Monthly Website Report

## CVC Monthly Environmental Report – March 2021

### 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	12.5	38.2
Feb-21	110.2	13.9	33.1
Mar-21	551.6	13.1	31.1

Variable	March	Total	Valid
10m Temp	99.6%	2976	2004
2m Temp	99.6%	2976	2004
A1	99.6%	2976	2004
A1_Scaled	99.6%	2976	2004
Assumed Temp	99.6%	2976	2004
Barometric	99.6%	2976	2004
Config	99.6%	2976	2004
Daily Evap	99.6%	2976	2004
Daily Rain	99.6%	2976	2004
Delta T	99.6%	2976	2004
Dew Point	99.6%	2976	2004
Dig-In	99.6%	2976	2004
Dig-Latch	99.6%	2976	2004
ESN	99.6%	2976	2004
FDI	99.6%	2976	2004
Heat Index	99.6%	2976	2004
Humidity	99.6%	2976	2004
Mobile Signal	99.6%	2976	2004
Rain	99.6%	2976	2004
Raw Evap	99.6%	2976	2004
S Class	99.6%	2976	2004
Scalar WS	99.6%	2976	2004
Sigma	99.6%	2976	2004
Site	0.0%	2976	0
Solar Radiation	99.6%	2976	2004
Vector WD	99.6%	2976	2004
Vector WS	99.6%	2976	2004
Volts	99.6%	2976	2004
Wind Chill	99.6%	2976	2004
Wind Direction	99.6%	2976	2004
Wind Speed	99.6%	2976	2004
WS Avg	99.6%	2976	2004
WS Gust	99.6%	2976	2004