



Chain Valley Colliery Monthly Website Report – April 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 April 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	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.

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 – PM₁₀
- Air Quality – PM_{2.5}; and
- Meteorological 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 **April 2021**

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

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

April 2021			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	26-Apr-21		
Date Obtained	3-May-21		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococci	col/100mL	-	35
Faecal Coliforms	CFU/100mL	200	11
pH	pH	6.5-8.5	7.67
Total Sus. Solids	mg/L	50	<5
Electrical Conductivity	µS/cm	-	30200

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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 (LDP1) and EPA Discharge Point 27 (LDP27) during April 2021 did not exceed the EPL 1770 discharge limit.

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	LDP 1 Volume
01/04/2021	kL	7308.10
02/04/2021	kL	2370.89
03/04/2021	kL	6150.62
04/04/2021	kL	5831.92
05/04/2021	kL	5776.81
06/04/2021	kL	4294.47
07/04/2021	kL	10745.75
08/04/2021	kL	8075.97
09/04/2021	kL	6660.75
10/04/2021	kL	5700.56
11/04/2021	kL	5136.96
12/04/2021	kL	5183.58
13/04/2021	kL	4454.38
14/04/2021	kL	5430.49
15/04/2021	kL	5458.98
16/04/2021	kL	5484.92
17/04/2021	kL	5548.14
18/04/2021	kL	5551.24
19/04/2021	kL	5472.06
20/04/2021	kL	5593.85
21/04/2021	kL	6411.38
22/04/2021	kL	8877.05
23/04/2021	kL	6024.06
24/04/2021	kL	5895.46
25/04/2021	kL	9323.45
26/04/2021	kL	2424.65
27/04/2021	kL	4443.94
28/04/2021	kL	8689.65
29/04/2021	kL	6169.84
30/04/2021	kL	6740.04

Average	kL	6041
Minimum	kL	2371
Maximum	kL	10,746

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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 a maximum of 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	190.6	1775.9
May-21		
Jun-21		

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.

April 2021	
EPL	1770
Limit	4g/m ² /month / Annum
Sampling Date	08/02/2021 to 12/03/2021
Site	Insoluble Matter (g/m ² /month)
DDG001	0.5
DDG002	0.6
DDG003	0.7
DDG004	0.6
DDG005	8.6
DDG006 (proposed DDG005 Replacement)	0.4
Notes:	
- For site locations refer to Chain Valley Colliery Air Quality Management Plan.	

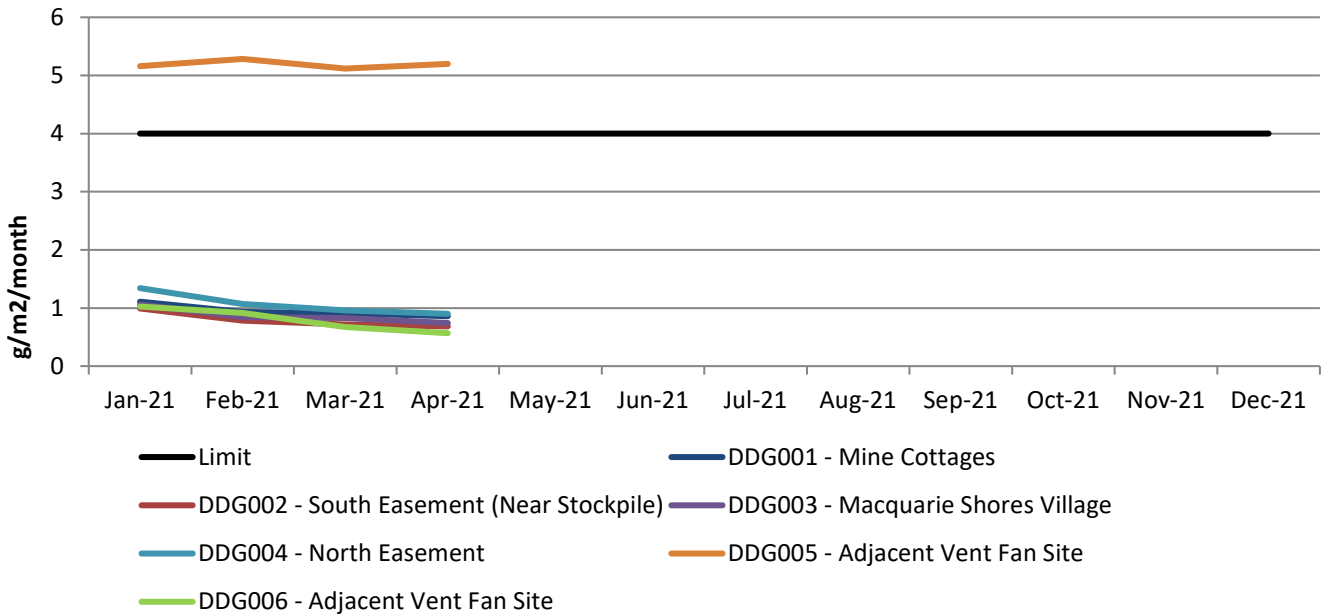
A 12 month rolling average of depositional dust concentrations has been presented below. Dust Guages DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery.

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DDG005 was intended to represent the fan site however has been frequently contaminated by factors outside of mine operations (bird droppings, insects, land maintenance activities and vegetation), 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.

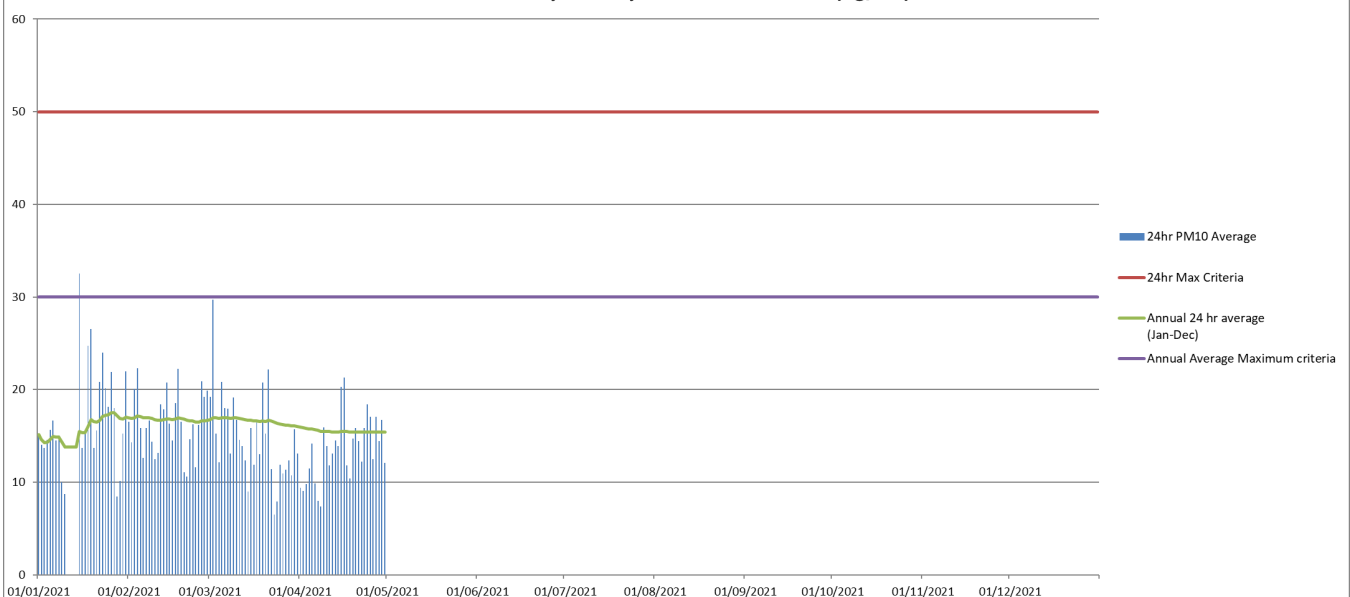
CVC Depositional Dust (12 month rolling average)



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 - 2021 TEOM PM10 (ug/m³)



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Annual 24hr PM₁₀ average maximum criteria for April 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.

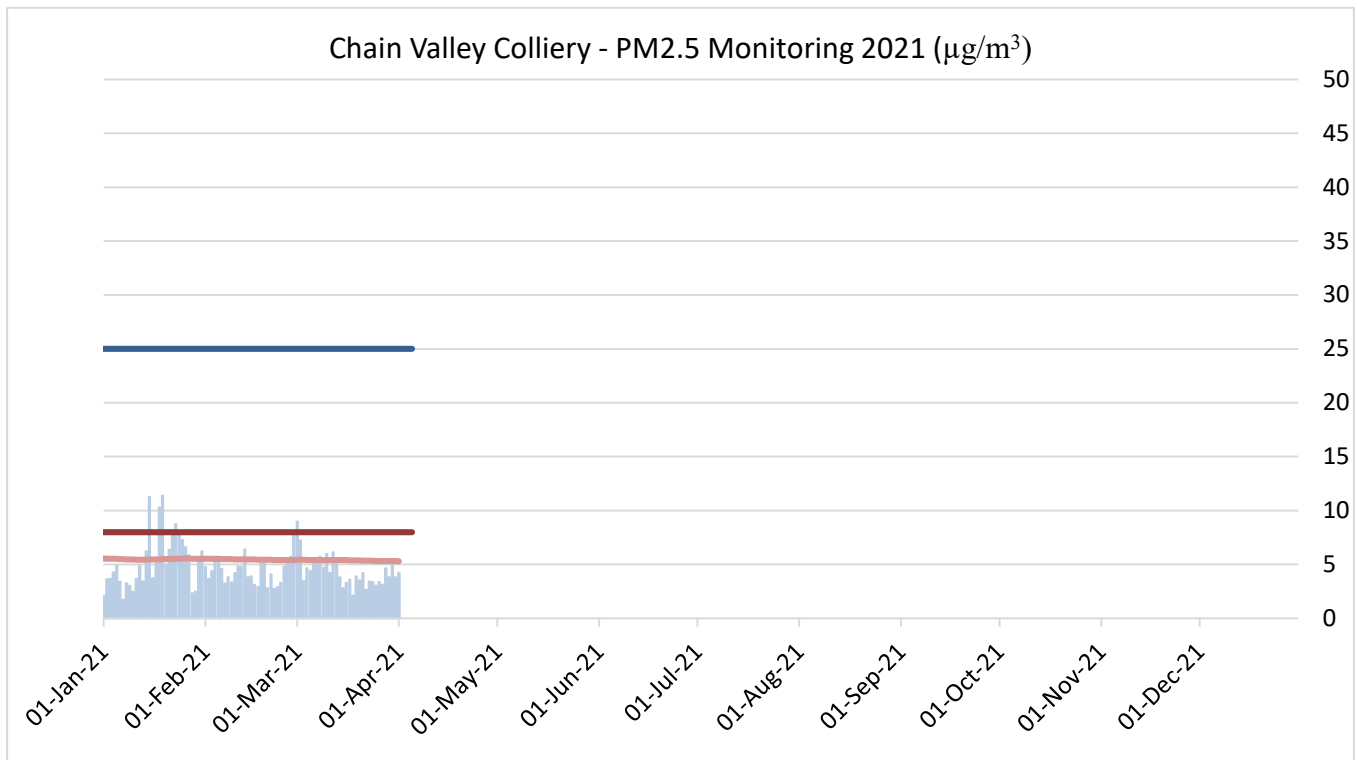
Variable	April	Total	Valid
A/C Temp	99.7%	8640	8610
A1	99.7%	8640	8610
A1_Scaled	99.7%	8640	8610
Bypass Flow	99.7%	8640	8610
Cap Temp	99.7%	8640	8610
Case Temp	99.7%	8640	8610
Config	99.7%	8640	8610
Dew Point	99.7%	8640	8610
Dig-In	99.7%	8640	8610
Dig-Latch	99.7%	8640	8610
ESN	99.7%	8640	8610
Filter Freq	99.7%	8640	8610
Filter Load	99.7%	8640	8610
Humidity	99.7%	8640	8610
MC	99.7%	8640	8610
MC 12Hr	99.7%	8640	8610
MC 1Hr	99.7%	8640	8610
MC 24Hr	99.7%	8640	8610
MC 30min	99.7%	8640	8610
MC 8Hr	99.7%	8640	8610
MC Total	99.7%	8640	8610
Mobile Signal	99.7%	8640	8610
Noise	99.7%	8640	8610
PM10 Flow	99.7%	8640	8610
Pressure	99.7%	8640	8610
Site	0.0%	8640	0
Temperature	99.7%	8640	8610
Tube Temp	99.7%	8640	8610
Vac Pressure	99.7%	8640	8610
Volts	99.7%	8640	8610

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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 is 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.



For the period of April 2021, the daily 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:

- April 2021 data availability was 99.7%; and
- 2021 year to date data availability has been 98%.

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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 th May 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
Apr-21	56.8	6.2	28.3

Variable	April	Total	Valid
10m Temp	99.6%	2880	2868
2m Temp	99.6%	2880	2868
A1	99.6%	2880	2868
A1_Scaled	99.6%	2880	2868
Assumed Temp	99.6%	2880	2868
Barometric	99.6%	2880	2868
Config	99.6%	2880	2868
Daily Evap	99.6%	2880	2868
Daily Rain	99.6%	2880	2868
Delta T	99.6%	2880	2868
Dew Point	99.6%	2880	2868
Dig-In	99.6%	2880	2868
Dig-Latch	99.6%	2880	2868
ESN	99.6%	2880	2868
FDI	99.6%	2880	2868
Heat Index	99.6%	2880	2868
Humidity	99.6%	2880	2868
Mobile Signal	99.6%	2880	2868
Rain	99.6%	2880	2868
Raw Evap	99.6%	2880	2868
S Class	99.6%	2880	2868
Scalar WS	99.6%	2880	2868
Sigma	99.6%	2880	2868
Site	0.0%	2880	0
Solar Radiation	99.6%	2880	2868
Vector WD	99.6%	2880	2868
Vector WS	99.6%	2880	2868
Volts	99.6%	2880	2868
Wind Chill	99.6%	2880	2868
Wind Direction	99.6%	2880	2868
Wind Speed	99.6%	2880	2868
WS Avg	99.6%	2880	2868
WS Gust	99.6%	2880	2868