



Chain Valley Colliery Monthly Website Report – May 2021

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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 month of May 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 **May 2021**

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

Steel River Testing - Dust Deposition Report **May 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 May 2021 monthly surface water sampling at Chain Valley Colliery, EPA Discharge Point 1 (LDP1) are presented below.

May 2021			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	24-05-2021		
Date Obtained	31-05-2021		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococci	col/100mL	-	76
Faecal Coliforms	CFU/100mL	200	13
pH	pH	6.5-8.5	7.61
Total Sus. Solids	mg/L	50	<5
Electrical Conductivity	µS/cm	-	29100

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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) during May 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
Saturday, 1 May 2021	kL	7701.32
Sunday, 2 May 2021	kL	7552.15
Monday, 3 May 2021	kL	7340.17
Tuesday, 4 May 2021	kL	5377.7
Wednesday, 5 May 2021	kL	7348.42
Thursday, 6 May 2021	kL	8522.4
Friday, 7 May 2021	kL	5863.4
Saturday, 8 May 2021	kL	5633.52
Sunday, 9 May 2021	kL	9236.01
Monday, 10 May 2021	kL	4696.53
Tuesday, 11 May 2021	kL	5700.7
Wednesday, 12 May 2021	kL	5439.29
Thursday, 13 May 2021	kL	9746.18
Friday, 14 May 2021	kL	5893.36
Saturday, 15 May 2021	kL	6458.96
Sunday, 16 May 2021	kL	5580.77
Monday, 17 May 2021	kL	5964.04
Tuesday, 18 May 2021	kL	5005.05
Wednesday, 19 May 2021	kL	4739.17
Thursday, 20 May 2021	kL	5285.63
Friday, 21 May 2021	kL	7946.56
Saturday, 22 May 2021	kL	6293.75
Sunday, 23 May 2021	kL	4458.06
Monday, 24 May 2021	kL	4389.75
Tuesday, 25 May 2021	kL	6605.47
Wednesday, 26 May 2021	kL	3712.09
Thursday, 27 May 2021	kL	8030.4
Friday, 28 May 2021	kL	5448.1
Saturday, 29 May 2021	kL	3701.89
Sunday, 30 May 2021	kL	5890.91
Monday, 31 May 2021	kL	5802.22

Average	kL	6173
Minimum	kL	3702
Maximum	kL	9746

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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	199.0	1,974.9
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.

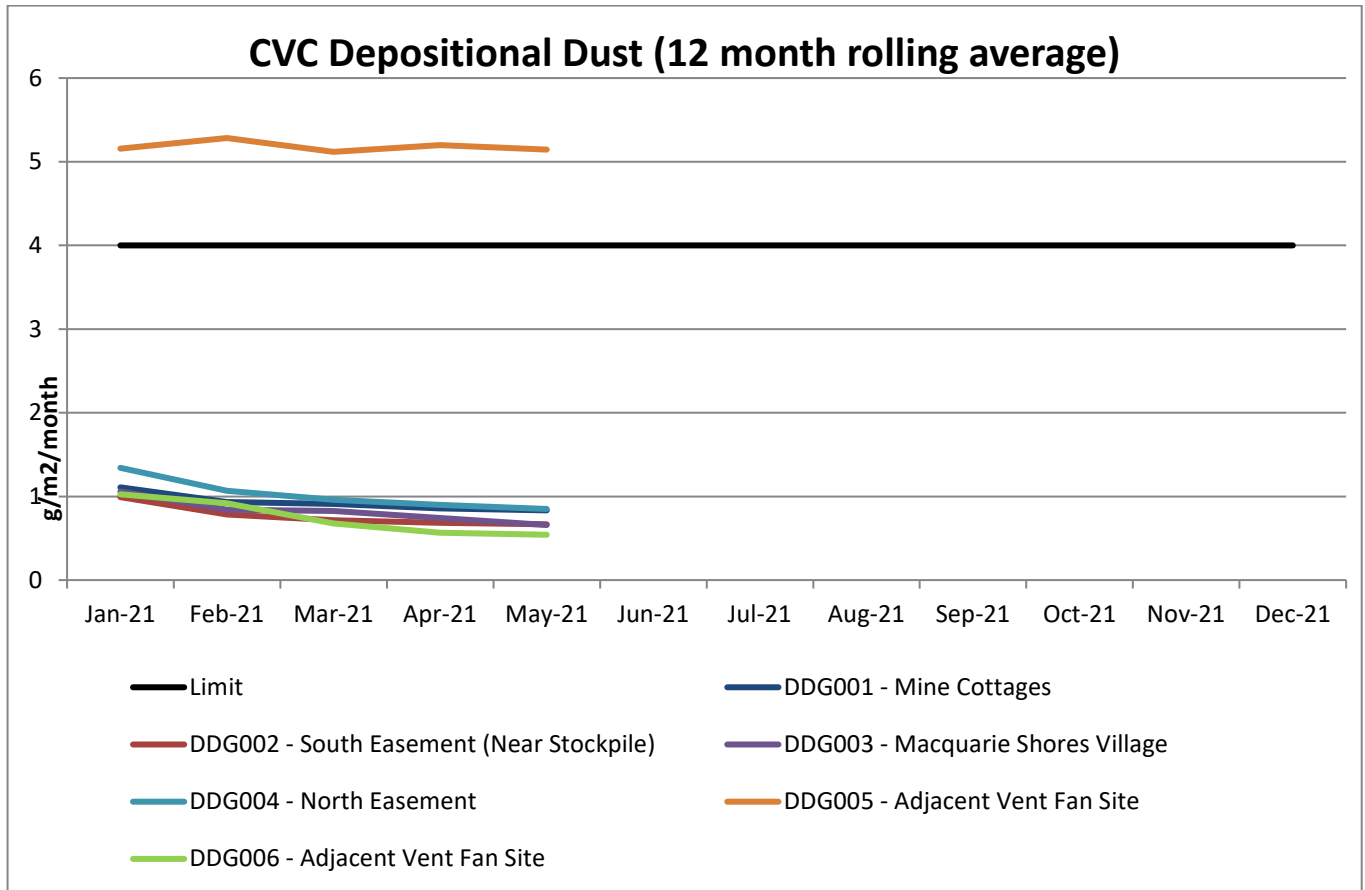
May 2021	
EPL	1770
Limit	4g/m ² /month / Annum
Sampling Date	12/04/2021 to 13/05/2021
Site	Insoluble Matter (g/m2/month)
DDG001	0.3
DDG002	0.3
DDG003	0.3
DDG004	0.4
DDG005	1.5
DDG006 (proposed DDG005 Replacement)	0.3
Notes: - For site locations refer to Chain Valley Colliery Air Quality Management Plan.	

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.

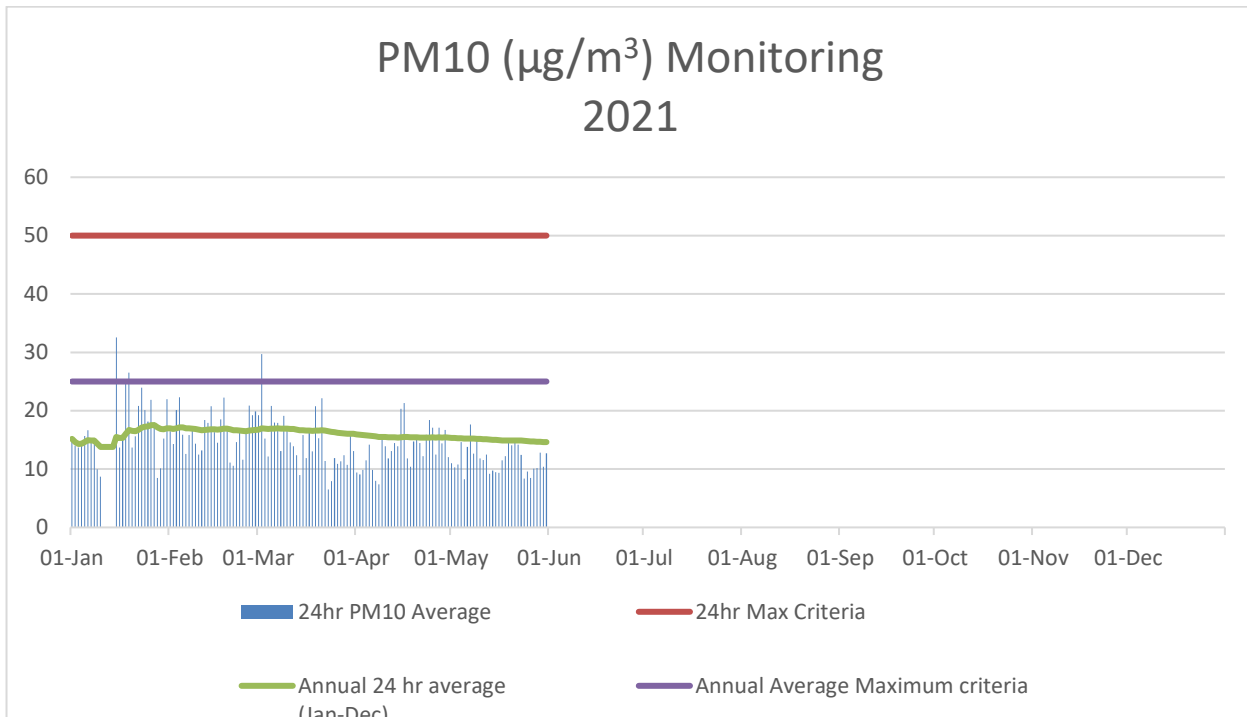


Air Quality – PM₁₀

The 24hr PM₁₀ average from Delta Coal's Tapered Element Oscillating Microbalance (TEOM) is presented below for the year to date.

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Annual 24hr PM₁₀ average maximum criteria for May 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.

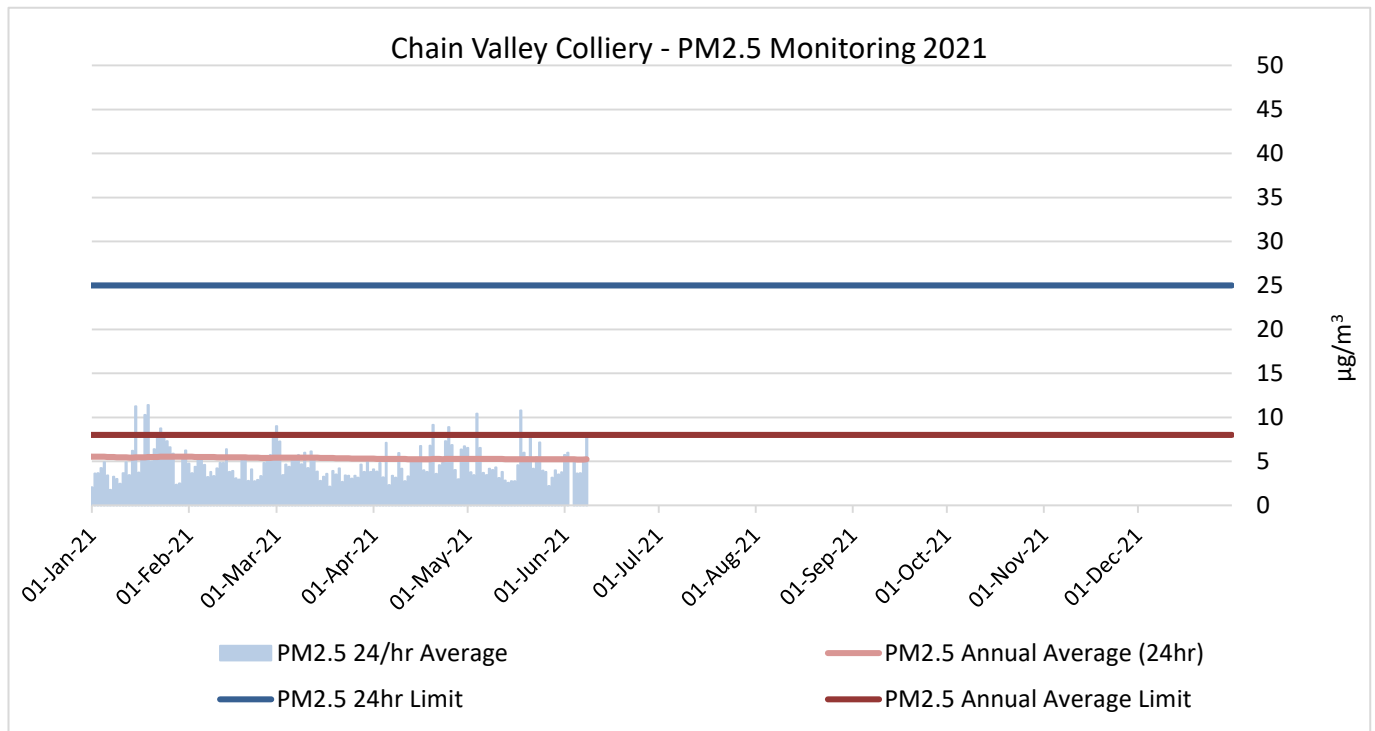
Variable	May	Total	Valid
A/C Temp	100%	8928	8928
A1	100%	8928	8928
A1_Scaled	100%	8928	8928
Bypass Flow	100%	8928	8928
Cap Temp	100%	8928	8928
Case Temp	100%	8928	8928
Config	100%	8928	8928
Dew Point	100%	8928	8928
Dig-In	100%	8928	8928
Dig-Latch	100%	8928	8928
ESN	100%	8928	8928
Filter Freq	100%	8928	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

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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 May 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:

- May 2021 data availability was 99%; 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	10 th June 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
May-21	30.8	4.1	25.6

Variable	May	Total	Valid
10m Temp	99.8%	2976	2970
2m Temp	99.8%	2976	2970
A1	99.8%	2976	2970
A1_Scaled	99.8%	2976	2970
Assumed Temp	99.8%	2976	2970
Barometric	99.8%	2976	2970
Config	99.8%	2976	2970
Daily Evap	99.8%	2976	2970
Daily Rain	99.8%	2976	2970
Delta T	99.8%	2976	2970
Dew Point	99.8%	2976	2970
Dig-In	99.8%	2976	2970
Dig-Latch	99.8%	2976	2970
ESN	99.8%	2976	2970
FDI	99.8%	2976	2970
Heat Index	99.8%	2976	2970
Humidity	99.8%	2976	2970
Mobile Signal	99.8%	2976	2970
Rain	99.8%	2976	2970
Raw Evap	99.8%	2976	2970
S Class	99.8%	2976	2970
Scalar WS	99.8%	2976	2970
Sigma	99.8%	2976	2970
Site	0.0%	2976	0
Solar Radiation	99.8%	2976	2970
Vector WD	99.8%	2976	2970
Vector WS	99.8%	2976	2970
Volts	99.8%	2976	2970
Wind Chill	99.8%	2976	2970
Wind Direction	99.8%	2976	2970
Wind Speed	99.8%	2976	2970
WS Avg	99.8%	2976	2970
WS Gust	99.8%	2976	2970