



Chain Valley Colliery Monthly Website Report – October 2021

Site:	Chain Valley Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Website Report – October 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 October 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 **October 2021**

ALS Group - Dust Deposition Report **October 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 October 2021 monthly surface water sampling at Chain Valley Colliery, EPA Discharge Point 1 (LDP1) are presented below.

October 2021			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	27-10-2021		
Date Obtained	03-11-2021		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococci	col/100mL	-	520
Faecal Coliforms	CFU/100mL	200	40
pH	pH	6.5-8.5	7.66
Total Sus. Solids	mg/L	50	<5
Electrical Conductivity	µS/cm	-	31,700
Oil and Grease			<5

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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 October 2021 did not exceed the EPL 1770 discharge limit.

EPL	1770
Licensee	Great Soutehrn Energy Pty Ltd
Premises	Chain Valley Colliery
Date Sampled	Daily
Date Reported	Refer report date
Discharge volume limit	12,161 kilolitres per day
Sampling Point	1

Date (24 hour period)	Unit	LDP 1 Volume
01/10/2021	kL	4966
02/10/2021	kL	5221
03/10/2021	kL	5003
04/10/2021	kL	5213
05/10/2021	kL	4115
06/10/2021	kL	4650
07/10/2021	kL	5168
08/10/2021	kL	5135
09/10/2021	kL	5134
10/10/2021	kL	5135
11/10/2021	kL	4915
12/10/2021	kL	5095
13/10/2021	kL	5560
14/10/2021	kL	1662
15/10/2021	kL	6093
16/10/2021	kL	7785
17/10/2021	kL	6708
18/10/2021	kL	6582
19/10/2021	kL	6703
20/10/2021	kL	6874
21/10/2021	kL	5887
22/10/2021	kL	7178
23/10/2021	kL	5885
24/10/2021	kL	6698
25/10/2021	kL	9004
26/10/2021	kL	6597
27/10/2021	kL	8649
28/10/2021	kL	7111
29/10/2021	kL	7105
30/10/2021	kL	8328
31/10/2021		7633

Average	kL	6058
Minimim	kL	1662
Maximum	kL	9004

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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 FY2021-2022		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative ML YTD)
July 2021	189.98	189.98
August 2021	164.83	354.82
September 2021	135.72	490.54
October 2021	187.79	678.33
November 2021		
December 2021		
January 2022		
February 2022		
March 2022		
April 2022		
May 2022		
June 2022		

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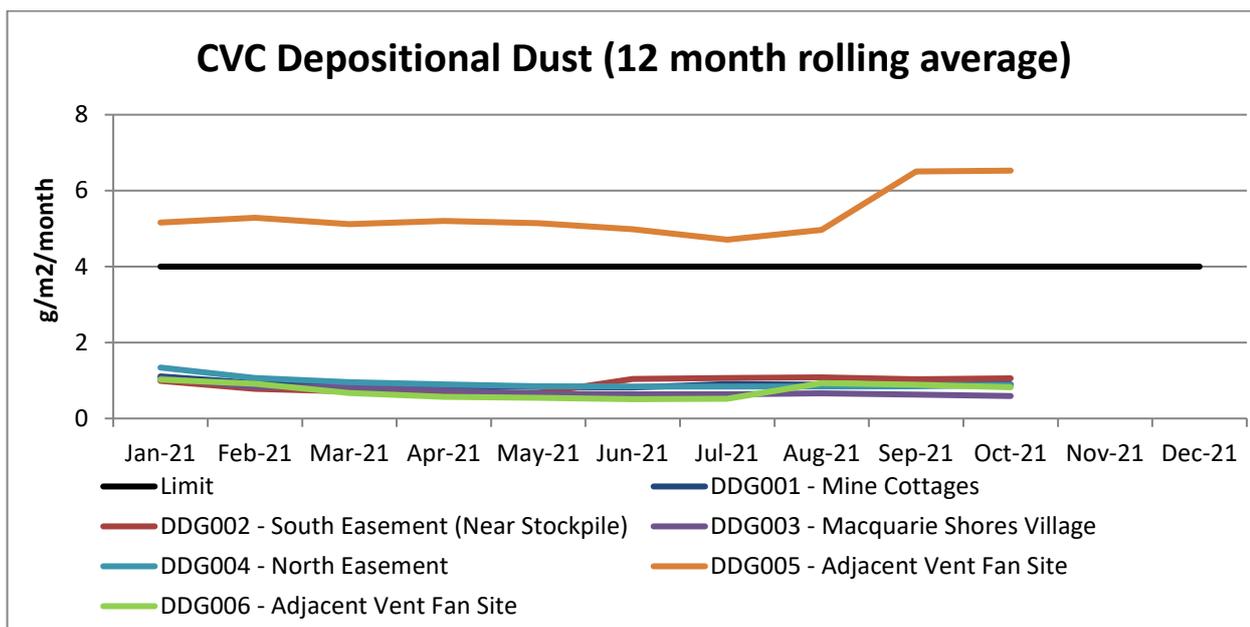
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Air Quality - Depositional Dust

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.

October 2021	
EPL	1770
Limit	4g/m ² /month / Annum
Sampling Date	09/09/2021 to 11/10/2021
Site	Insoluble Matter (g/m²/month)
DDG001	0.6
DDG002	1.0
DDG003	0.5
DDG004	2.7
DDG005	1.0
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 CVC ventilation 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 considered more representative of the CVC vent fan site. Delta Coal currently have a submission with the DPIE to amend the Chain Valley Colliery Air Quality Management Plan to replace location DDG005 with DDG006.

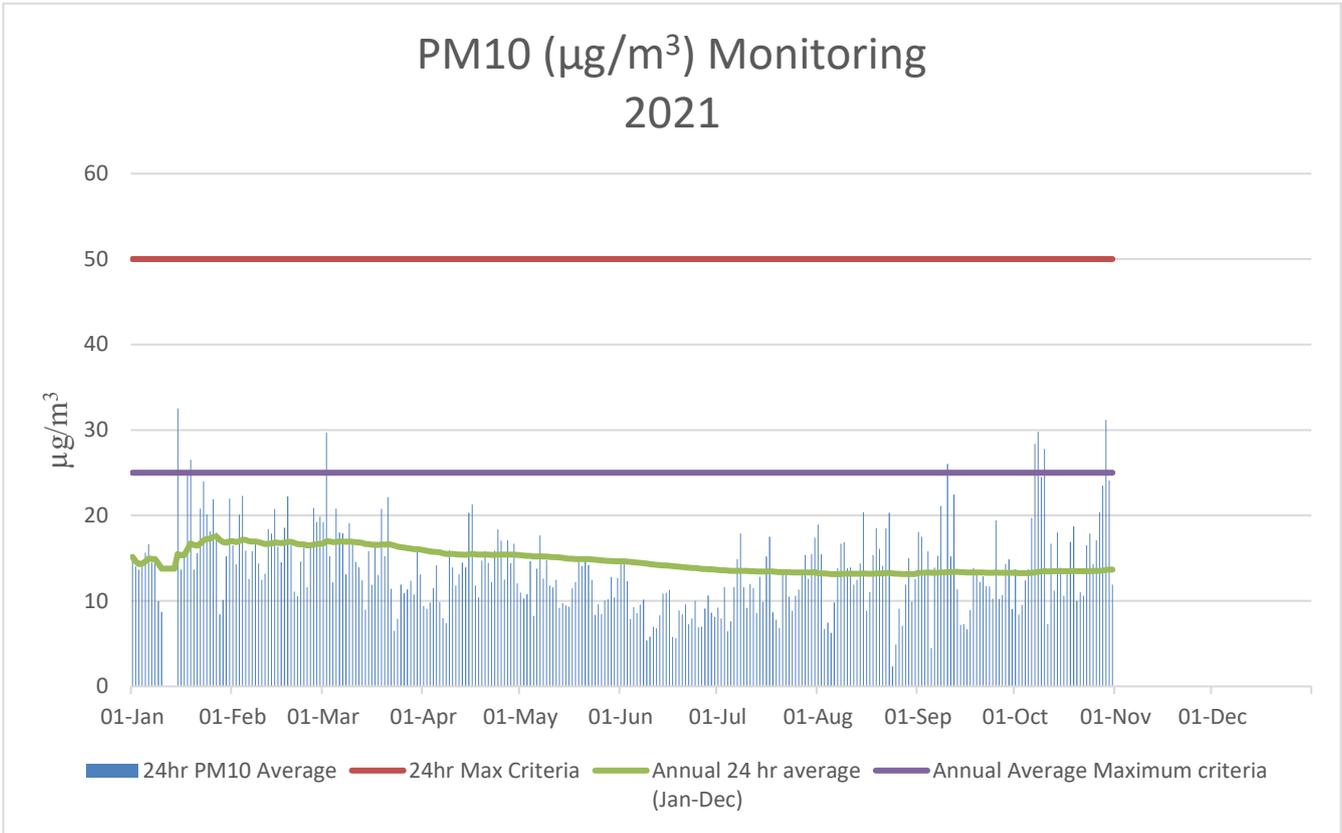


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Air Quality – PM₁₀

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



Annual 24hr PM₁₀ average maximum criteria for October 2021 was below the annual average maximum criteria limit. A summary of data availability for Delta Coal’s TEOM is presented below for the reporting period.

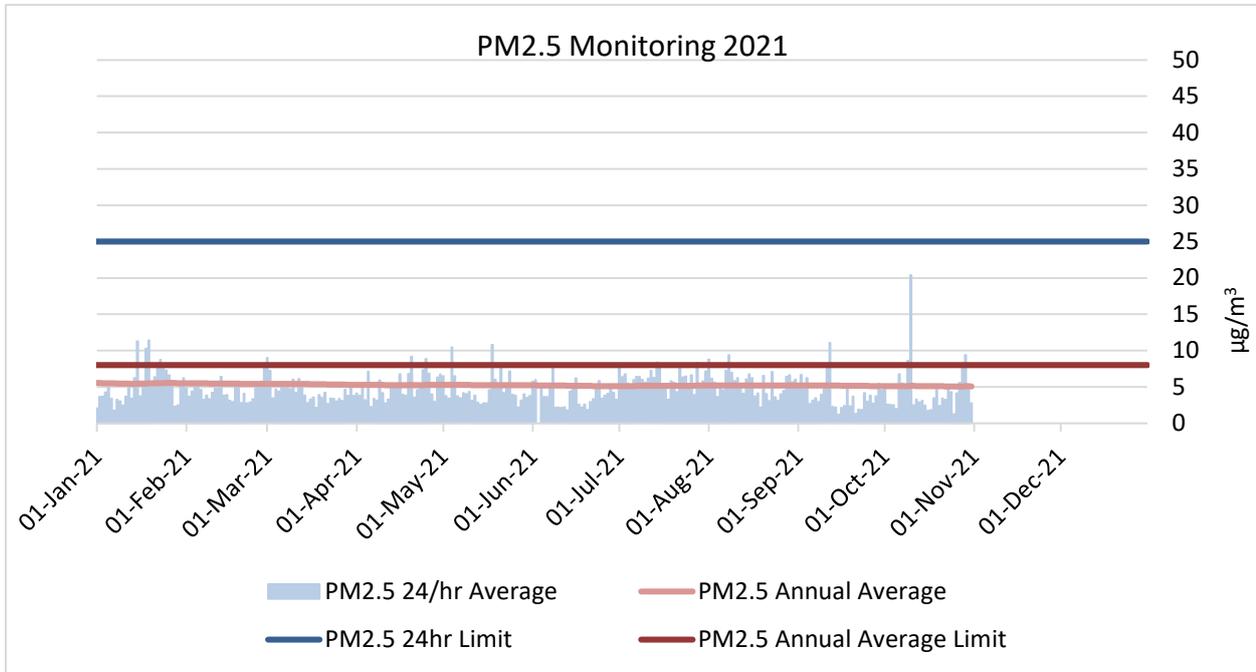
Variable	October Total	Valid
A/C Temp	99.4%	8928 8877
A1	99.4%	8928 8877
A1_Scaled	99.4%	8928 8877
Bypass Flow	99.4%	8928 8877
Cap Temp	99.4%	8928 8877
Case Temp	99.4%	8928 8877
Config	99.4%	8928 8877
Dew Point	99.4%	8928 8877
Dig-In	99.4%	8928 8877
Dig-Latch	99.4%	8928 8877
ESN	99.4%	8928 8877
Filter Freq	99.4%	8928 8877
Filter Load	99.4%	8928 8877
Humidity	99.4%	8928 8877
MC	99.4%	8928 8877
MC 12Hr	99.4%	8928 8877
MC 1Hr	99.4%	8928 8877
MC 24Hr	99.4%	8928 8877
MC 30min	99.4%	8928 8877
MC 8Hr	99.4%	8928 8877
MC Total	99.4%	8928 8877
Mobile Signal	99.4%	8928 8877
Noise	99.4%	8928 8877
PM10 Flow	99.4%	8928 8877
Pressure	99.4%	8928 8877
Site	0.0%	8928 0
Temperature	99.4%	8928 8877
Tube Temp	99.4%	8928 8877
Vac Pressure	99.4%	8928 8877
Volts	99.4%	8928 8877

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Air Quality – PM_{2.5}

Delta Coal utilises PM_{2.5} data obtained from Delta Electricity owned and operated beta attenuation monitor (BAM). The PM_{2.5} monitor is located on Tingley Road, Wyee.



For the reporting period, the daily PM_{2.5} average concentration and annual average PM_{2.5} concentration did not exceed limits of 25 $\mu\text{g}/\text{m}^3$ and 8 $\mu\text{g}/\text{m}^3$ respectively.

PM_{2.5} data availability for:

- October 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	14 th November 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
June-21	74.6	3.3	21.5
July-21	37.2	2	24.8
August-21	60.4	3.6	26.3
September-21	73.4	5.4	30.5
October-21	16.4	7.5	33.1

Variable	October	Total	Valid
Baro (Corrected)	99.9%	2978	2973
10m Temp	99.9%	2978	2973
2m Temp	99.9%	2978	2973
A1	99.9%	2978	2973
A1_Scaled	99.9%	2978	2973
Assumed Temp	99.9%	2978	2973
Barometric	99.9%	2978	2973
Config	99.9%	2978	2973
Daily Evap	99.9%	2978	2973
Daily Rain	99.9%	2978	2973
Delta T	99.9%	2978	2973
Dew Point	99.9%	2978	2973
Dig-In	99.9%	2978	2973
Dig-Latch	99.9%	2978	2973
ESN	99.9%	2978	2973
FDI	99.9%	2978	2973
Heat Index	99.9%	2978	2973
Humidity	99.9%	2978	2973
Mobile Signal	99.9%	2978	2973
Rain	99.9%	2978	2973
Raw Evap	99.9%	2978	2973
S Class	99.9%	2978	2973
Scalar WS	99.9%	2978	2973
Sigma	99.9%	2978	2973
Site	0.0%	2978	0
Solar Radiation	99.9%	2978	2973
Vector WD	99.9%	2978	2973
Vector WS	99.9%	2978	2973
Volts	99.9%	2978	2973
Wind Chill	99.9%	2978	2973
Wind Direction	99.9%	2978	2973
Wind Speed	99.9%	2978	2973
WS Avg	99.9%	2978	2973
WS Gust	99.9%	2978	2973