



Chain Valley Colliery Monthly Website Report – January 2022

Site:	Chain Valley Colliery
Department:	Technical Services
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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 ₁₀	9
Weather Data	11

Monthly Website Report

CVC Monthly Environmental Report – January 2022

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 January 2022.

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.

Monthly Website Report

CVC Monthly Environmental Report – January 2022

References

ALS Group - Monthly Water Monitoring Results **January 2022**

ALS Group - Dust Deposition Report **January 2022**

Development Consent SSD-5465 (as modified)

Environment Protection Licence (EPL) 1770 (Licence version date: 30 September 2021)

Monitoring Results

Water – Quality

Water quality results for January 2022 monthly surface water sampling at Chain Valley Colliery, EPA Discharge Point 1 (LDP1) are presented below.

January 2022			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	24-11-2021		
Date Obtained	01-12-2021		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococci	col/100mL	-	84
Faecal Coliforms	CFU/100mL	200	220
pH	pH	6.5-8.5	7.35
Total Sus. Solids	mg/L	50	<5
Electrical Conductivity	µS/cm	-	31,800
Oil and Grease			<5

Routine sampling in January 2022 identified an exceedance of Faecal Coliform limits, regulatory authorities were provided a report on the incident. The incident was reported to the NSW EPA, DPIE and Resources Regulator. Corrective actions undertaken following the Faecal Coliform exceedance included the review and modification of CVC's chlorine dosing pump system (dosing time and volumes). Delta Coal remains committed to the completion of the connection of CVC's effluent to Central Coast Council's sewage system. A summary of the incident is provided in the Chain Valley Colliery – Complaints and Incidents Register on the Delta Coal website (www.deltacoal.com.au).

Monthly Website Report

CVC Monthly Environmental Report – January 2022

Water – Volume

Monthly water volumes discharged from the site are summarised below.

The daily water volumes at EPA Discharge Point 1 (LDP1) during January 2022 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
01/01/2022	kL	0*
02/01/2022	kL	0*
03/01/2022	kL	0*
04/01/2022	kL	0*
05/01/2022	kL	0*
06/01/2022	kL	0*
07/01/2022	kL	0*
08/01/2022	kL	0*
09/01/2022	kL	0*
10/01/2022	kL	0*
11/01/2022	kL	3708.23
12/01/2022	kL	4806.7
13/01/2022	kL	4600.06
14/01/2022	kL	5226.67
15/01/2022	kL	3195.51
16/01/2022	kL	4117.33
17/01/2022	kL	5255.25
18/01/2022	kL	5498.54
19/01/2022	kL	7888.83
20/01/2022	kL	5259.74
21/01/2022	kL	8051.39
22/01/2022	kL	1624.5
23/01/2022	kL	1102.83
24/01/2022	kL	3370.05
25/01/2022	kL	4379.35
26/01/2022	kL	3577.15
27/01/2022	kL	4477.79
28/01/2022	kL	5504.42
29/01/2022	kL	4864.3
30/01/2022	kL	4936.83
31/01/2022	kL	4974.47
Average	kL	4572.27
Minimum	kL	1102.83
Maximum	kL	8051.39

Monthly Website Report

CVC Monthly Environmental Report – January 2022

The volumetric flow meter installed and monitoring discharge volumes at LDP1 was vandalised on the 26/12/2021. Due to the vandalism the monitor ceased operating. The incident was investigated and reported to the NSW EPA, DPIE and Resources Regulator. Missing data was replaced with annual average volumes for 2021 and the monitor was repaired on the 10/01/2022 following sourcing of replacement parts.

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	173.63	851.96
December 2021	157.59	1009.55
January 2022	159.53	1169.08
February 2022		
March 2022		
April 2022		
May 2022		
June 2022		

Monthly Website Report

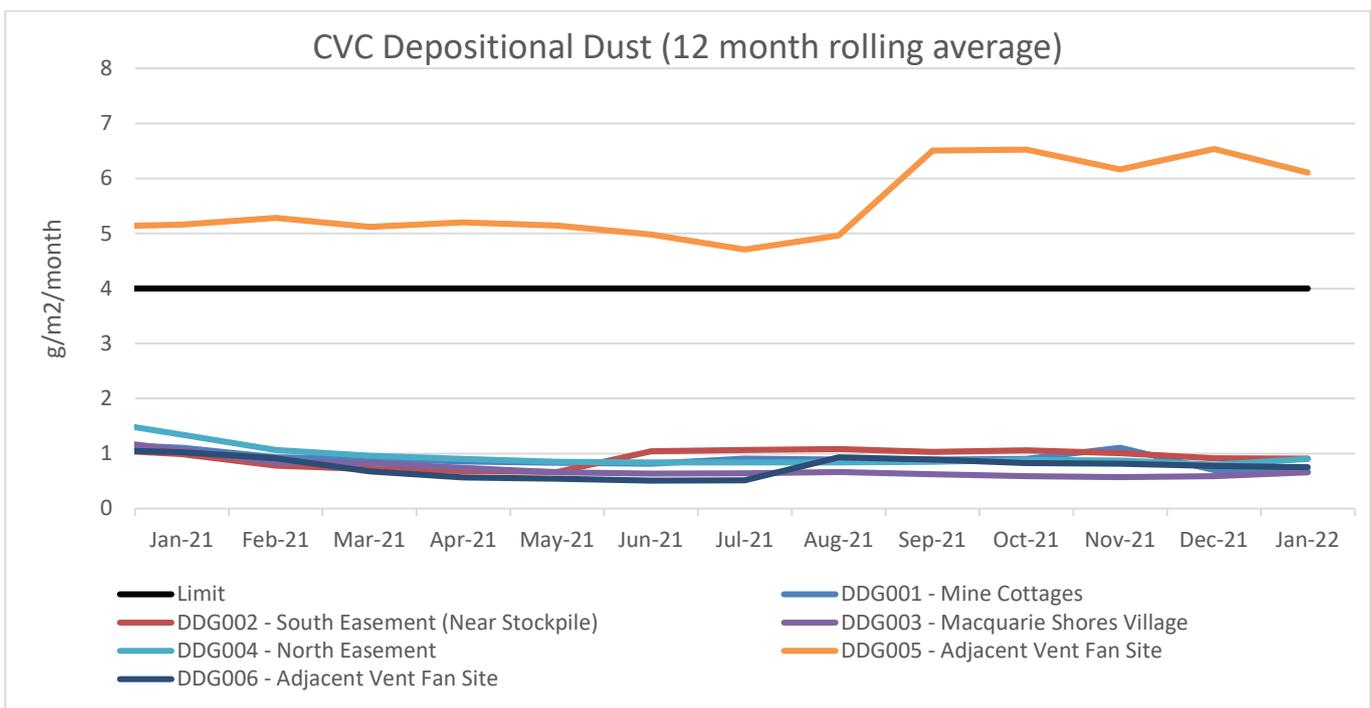
CVC Monthly Environmental Report – January 2022

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.

January 2022	
EPL	1770
Limit	4g/m ² /month / Annum
Sampling Date	10/12/2021 to 07/01/2022
Site	Insoluble Matter (g/m²/month)
DDG001	0.1
DDG002	0.4
DDG003	1.2
DDG004	1.5
DDG005	0.5
DDG006 (proposed DDG005 Replacement)	0.2
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.

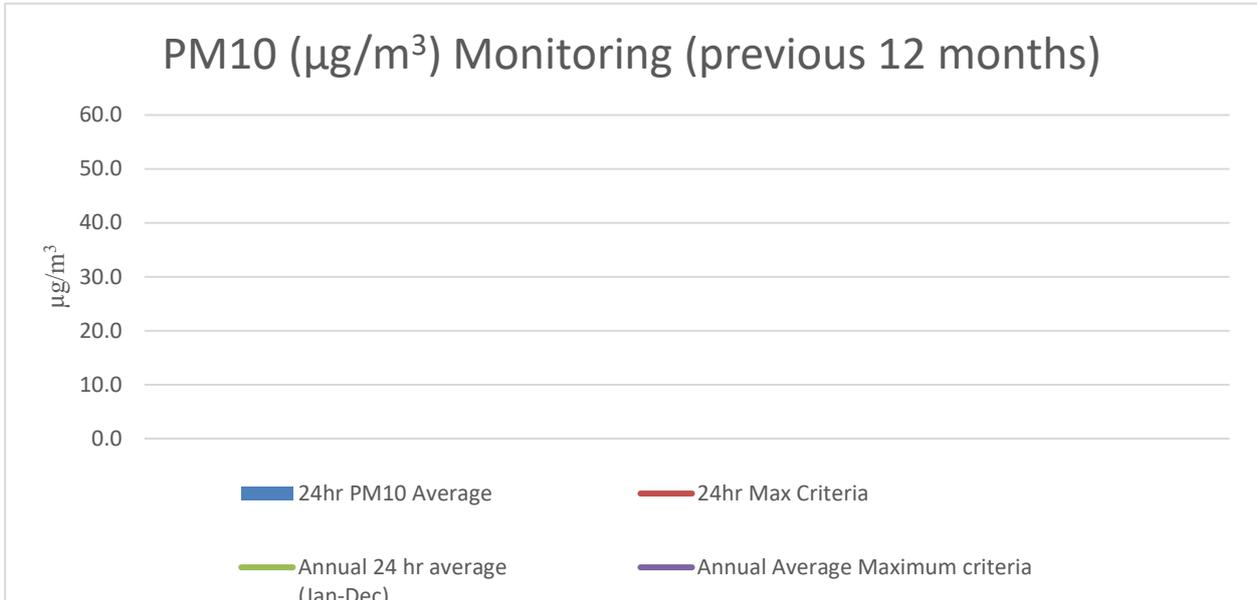


Monthly Website Report

CVC Monthly Environmental Report – January 2022

Air Quality – PM₁₀

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



Variable	January	Total	Valid
A/C Temp	99.9%	8928	8922
A1	99.9%	8928	8922
A1_Scaled	99.9%	8928	8922
Bypass Flow	99.9%	8928	8922
Cap Temp	99.9%	8928	8922
Case Temp	99.9%	8928	8922
Config	99.9%	8928	8922
Dew Point	99.9%	8928	8922
Dig-In	99.9%	8928	8922
Dig-Latch	99.9%	8928	8922
ESN	99.9%	8928	8922
Filter Freq	99.9%	8928	8922
Filter Load	99.9%	8928	8922
Humidity	99.9%	8928	8922
MC	99.9%	8928	8922
MC 12Hr	99.9%	8928	8922
MC 1Hr	99.9%	8928	8922
MC 24Hr	99.9%	8928	8922
MC 30min	99.9%	8928	8922
MC 8Hr	99.9%	8928	8922
MC Total	99.9%	8928	8922
Mobile Signal	99.9%	8928	8922
Noise	99.9%	8928	8922
PM10 Flow	99.9%	8928	8922
Pressure	99.9%	8928	8922
Site	0.0%	8928	0
Temperature	99.9%	8928	8922
Tube Temp	99.9%	8928	8922
Vac Pressure	99.9%	8928	8922
Volts	99.9%	8928	8922

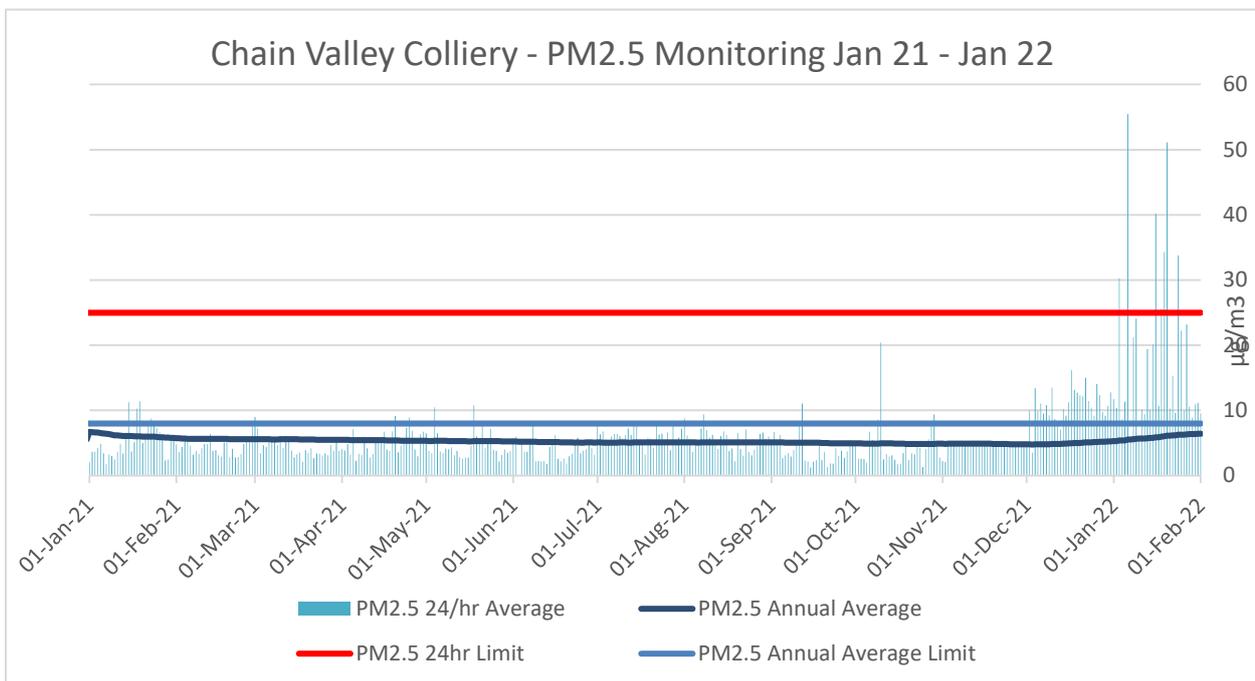
Monthly Website Report

CVC Monthly Environmental Report – January 2022

Annual 24hr PM₁₀ average maximum criteria for January 2022 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. Delta Coals TEOM had a data availability of **100%** for the month of January 2021.

Air Quality – PM2.5

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 was observed to exceed daily limits of 25 µg/m³ on seven occasions, however the annual rolling average PM_{2.5} concentration did not exceed limits of 8 µg/m³.

Further information on daily PM_{2.5} exceedances are provided within the Delta Coal, Chain Valley Colliery and also the Mannering Colliery complaint / incident registers on the Delta Coal website (www.deltacoal.com.au). At the time of preparing this report, Delta Coal are investigating causes and corrective actions for the exceedance.

PM_{2.5} data availability for:

- January 2022 data availability was 99.73%; and
- 2022 year to date data availability was also 99.73%.

Monthly Website Report

CVC Monthly Environmental Report – January 2022

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 2022			
Licensee	Great Southern Energy Pty Ltd		
Location	Mannering Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	14 th February 2022		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-22	110.6	15.4	30.5

Variable	January	Total	Valid
Baro (Corrected)	100%	2976	2976
10m Temp	100%	2976	2976
2m Temp	100%	2976	2976
A1	100%	2976	2976
A1_Scaled	100%	2976	2976
Assumed Temp	100%	2976	2976
Barometric	100%	2976	2976
Config	100%	2976	2976
Daily Evap	100%	2976	2976
Daily Rain	100%	2976	2976
Delta T	100%	2976	2976
Dew Point	100%	2976	2976
Dig-In	100%	2976	2976
Dig-Latch	100%	2976	2976
ESN	100%	2976	2976
FDI	100%	2976	2976
Heat Index	100%	2976	2976
Humidity	100%	2976	2976
Mobile Signal	100%	2976	2976
Rain	100%	2976	2976
Raw Evap	100%	2976	2976
S Class	100%	2976	2976
Scalar WS	100%	2976	2976
Sigma	100%	2976	2976
Site	0.0%	2976	0
Solar Radiation	100%	2976	2976
Vector WD	100%	2976	2976
Vector WS	100%	2976	2976
Volts	100%	2976	2976
Wind Chill	100%	2976	2976
Wind Direction	100%	2976	2976
Wind Speed	100%	2976	2976
WS Avg	100%	2976	2976
WS Gust	100%	2976	2976