



Chain Valley Colliery Monthly Website Report – December 2022

Site:	Chain Valley Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Website Report – December 2022
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Report Date:	10 th January 2023
Distribution:	Delta Coal Website

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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) publicly 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 December 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	EPL 1770 10 August 2022

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 **December 2022**

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

Development Consent SSD-5465 (as modified)

Environment Protection Licence (EPL) 1770 (Licence version date: 10 August 2022)

Monitoring Results

Water – Quality

Water quality results for December 2022 monthly surface water sampling at Chain Valley Colliery, Licensed Discharge Point (LDP 1) are presented below.

December 2022			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	13-12-2022		
Date Obtained	19-12-2022		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	22
Faecal Coliforms	CFU/100mL	200	18
pH	pH	6.5-8.5	7.68
Total Sus. Solids (TSS)	mg/L	50	34
Electrical Conductivity	µS/cm	-	30,000

There were no exceedances of water quality criteria recorded in the reporting period (December 2022).

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Water – Volume

Monthly water volumes discharged from the site are summarised below. There was no exceedance of volumetric discharge recorded at CVC for the period of December 2022.

EPL	1770
Licensee	Great Southern 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)	LDP 1 Volume (kL)	Rainfall (mm)
01/12/2022	5476.27	0
02/12/2022	6189.38	0
03/12/2022	6160.97	0
04/12/2022	5414.87	0
05/12/2022	8169.57	0.2
06/12/2022	5983.32	0.6
07/12/2022	7577.47	0
08/12/2022	7503.3	0
09/12/2022	5621.33	1.2
10/12/2022	7843.49	2.6
11/12/2022	5858.54	0
12/12/2022	7213.3	7
13/12/2022	6347.08	0
14/12/2022	4249.01	0
15/12/2022	8823.89	0
16/12/2022	6148.6	6.6
17/12/2022	7554.51	3
18/12/2022	6301.03	12.4
19/12/2022	7663.77	1.6
20/12/2022	5963.51	0
21/12/2022	5434.32	0
22/12/2022	6154.4	1.8
23/12/2022	8998.1	0.2
24/12/2022	5486.08	0
25/12/2022	5843.1	0
26/12/2022	7648.53	0
27/12/2022	8651.63	0
28/12/2022	4124.04	0
29/12/2022	4385.67	0.4
30/12/2022	5653.25	7.6
31/12/2022	6279.31	0
Average	6475	1.45
Minimum	4124	0
Maximum	8998	12.4

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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 calendar) with a roll-over entitlement up to a maximum of 8,886 megalitres.

CVC Groundwater to Surface Totals FY2022-2023		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative ML YTD)
July 2022	225	225
August 2022	204	429
September 2022	222	651
October 2022	220	872
November 2022	223	1,095
December 2022	215	1,310
January 2023		
February 2023		
March 2023		
April 2023		
May 2023		
June 2023		

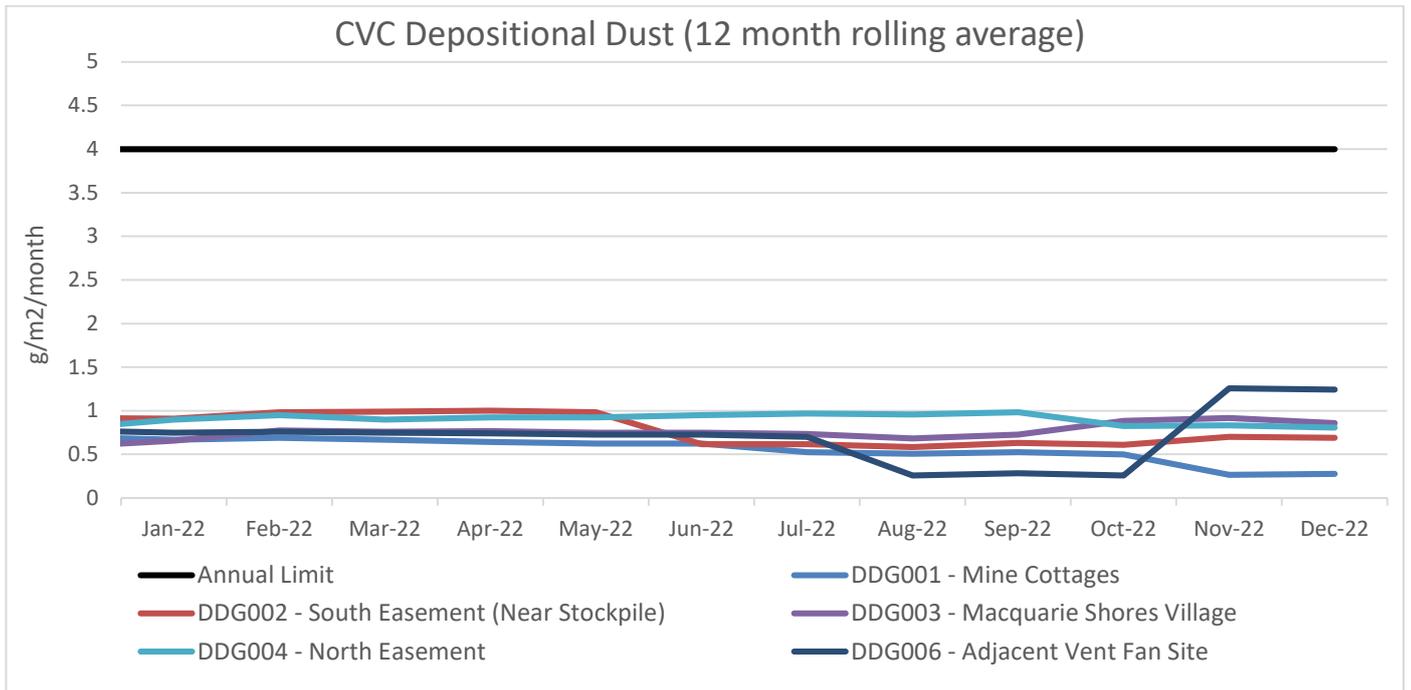
Air Quality - Depositional Dust

Monthly depositional dust results are shown below. Dust deposition gauges were sampled and analysed in accordance with the development consent, Delta Coal Air Quality and Greenhouse Gas Management Plan, and relevant Australian Standards.

December 2022	
EPL	1770
Limit	4g/m ² /month / Annum 2g/m ² /month increase from previous result
Sampling Date	04/11/2022 – 05/12/2022
Site	Insoluble Matter (g/m²/month)
DDG001	0.4
DDG002	0.5
DDG003	0.9
DDG004	0.8
DDG006	0.2
Notes: For site locations refer to the Delta Coal Air Quality and Greenhouse Gas Management Plan.	

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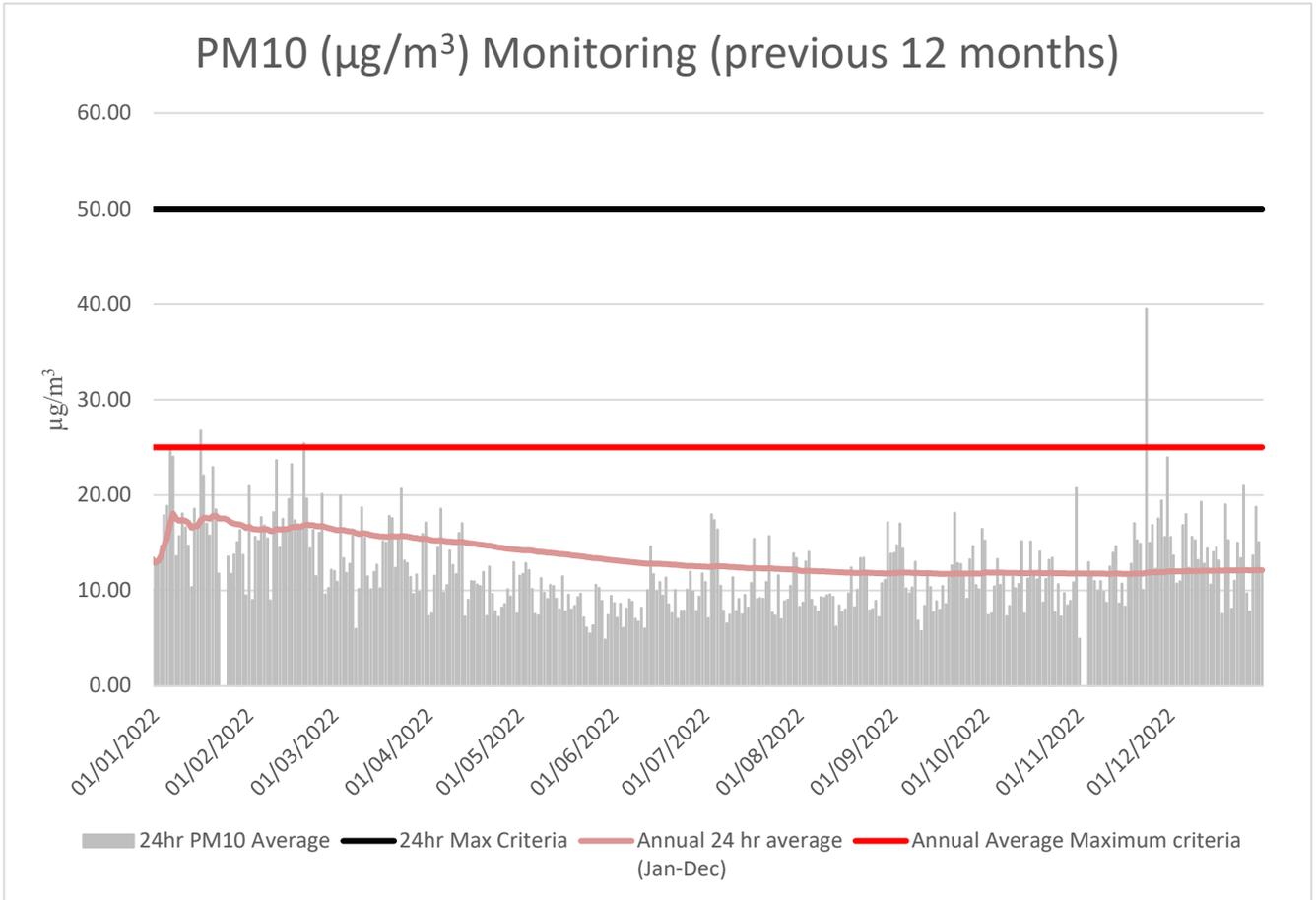
A 12-month rolling average of depositional dust concentrations has been presented below. Dust Gauges DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery and DDG006 is positioned in a location representative of the Chain Valley Colliery ventilation fan site at Summerland Point.

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Air Quality – PM₁₀

The 24hr PM₁₀ average from Delta Coal’s Tapered Element Oscillating Microbalance (TEOM), located at the Mannering Park Sewage Treatment Plant, is presented below for the previous 12 months.



Annual 24hr PM₁₀ average maximum criteria for December 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 **98.9%** for the month of December 2022. It was noted that on the 23rd of November, an elevated result was observed ($39.5 \mu\text{g}/\text{m}^3$), this was considered to be due to hazard reduction burns being undertaken within the region.

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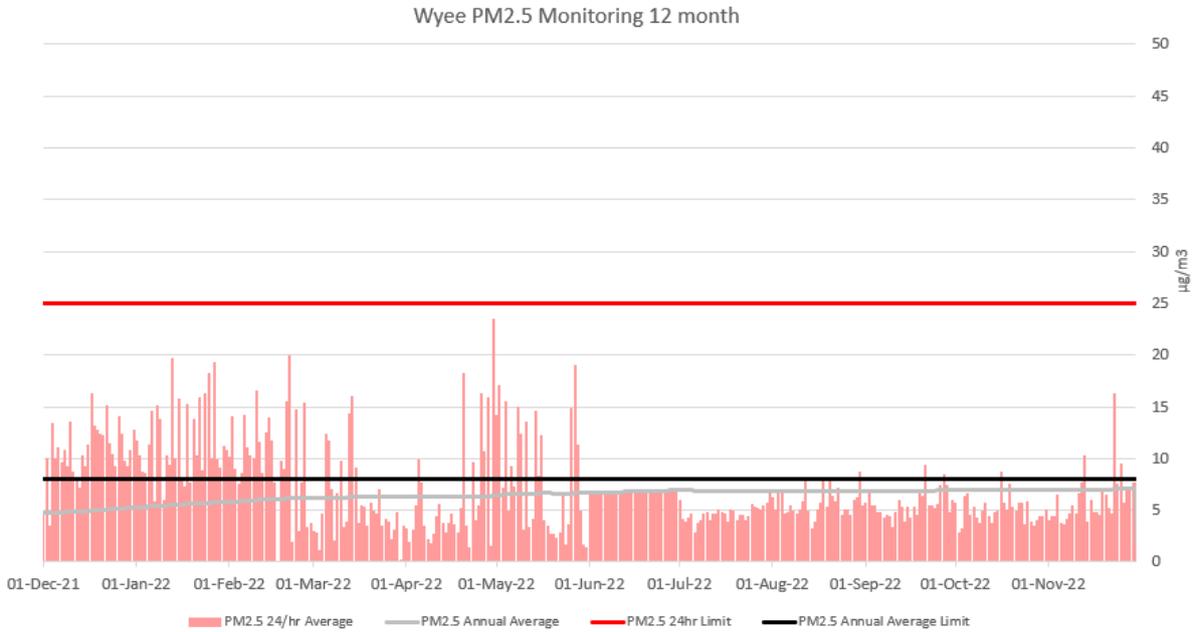
Variable	December	Total	Valid
A/C Temp	100%	8928	8928
A1	100%	8928	8928
A1_Scaled	100%	8928	8928
Bypass Flow	100%	8928	8928
Cap Temp	100%	8928	8928
Case Temp	100%	8928	8928
Config	100%	8928	8928
Dew Point	100%	8928	8928
Dig-In	100%	8928	8928
Dig-Latch	100%	8928	8928
ESN	100%	8928	8928
Filter Freq	100%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



There were no exceedances of the PM_{2.5} daily average limit in November 2022. The 12-month rolling average PM_{2.5} value on 30 November 2022 was 7.11 µg/m³. PM_{2.5} data availability for November 2022 was 100%. The 2022 year to date PM_{2.5} data availability was 91%.

December PM_{2.5} monitoring data will be presented in the January 2023 monthly report due to data supply and validation delays.

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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 2022			
Licensee	Great Southern Energy Pty Ltd		
Location	Mannering Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	05 January 2022		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-22	110.6	15.4	30.5
Feb-22	187.2	14.1	34
Mar-22	398.4	13.1	29
Apr-22	174.4	9.8	28.3
May-22	132.4	5.3	26.1
Jun-22	24.8	3	21.5
Jul-22	356.8	2.8	21.4
Aug-22	44	3.9	23.6
Sep-22	120	6	23.6
Oct-22	163.4	6.8	29.2
Nov-22	47	7.3	32.2
Dec-22	45.2	10.7	30.8

Variable	December	Total	Valid
Baro (Corrected)	220.6%	2976	6564
10m Temp	220.6%	2976	6564
2m Temp	220.6%	2976	6564
A1	220.6%	2976	6564
A1_Scaled	220.6%	2976	6564
Assumed Temp	220.6%	2976	6564
Barometric	220.6%	2976	6564
Config	220.6%	2976	6564
Daily Evap	220.6%	2976	6564
Daily Rain	220.6%	2976	6564
Delta T	220.6%	2976	6564
Dew Point	220.6%	2976	6564
Dig-In	220.6%	2976	6564
Dig-Latch	220.6%	2976	6564
ESN	220.6%	2976	6564
FDI	220.6%	2976	6564
Heat Index	220.6%	2976	6564
Humidity	220.6%	2976	6564
Mobile Signal	220.6%	2976	6564
Rain	220.6%	2976	6564
Raw Evap	220.6%	2976	6564
S Class	220.6%	2976	6564
Scalar WS	220.6%	2976	6564
Sigma	220.6%	2976	6564
Site	0.0%	2976	0
Solar Radiation	220.6%	2976	6564
Vector WD	220.6%	2976	6564
Vector WS	220.6%	2976	6564
Volts	220.6%	2976	6564
Wind Chill	220.6%	2976	6564
Wind Direction	220.6%	2976	6564
Wind Speed	220.6%	2976	6564
WS Avg	220.6%	2976	6564
WS Gust	220.6%	2976	6564