



Chain Valley Colliery Monthly Website Report – November 2022

Site:	Chain Valley Colliery
Department:	Technical Services
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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 November 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 **November 2022**

ALS Group - Dust Deposition Report **November 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 November 2022 monthly surface water sampling at Chain Valley Colliery, Licensed Discharge Point (LDP 1) are presented below.

November 2022			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	15-11-2022		
Date Obtained	21-11-2022		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	24
Faecal Coliforms	CFU/100mL	200	51
pH	pH	6.5-8.5	7.55
Total Sus. Solids (TSS)	mg/L	50	<5
Electrical Conductivity	µS/cm	-	29,000

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

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Water – Volume

Monthly water volumes discharged from the site are summarised below. There were no exceedance of volumetric discharge recorded at CVC for the period of October 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)
01/11/2022	7469.96	0.6
02/11/2022	6366.92	0
03/11/2022	7180.43	3
04/11/2022	7437.62	1.4
05/11/2022	7899.33	0
06/11/2022	8627.26	0
07/11/2022	6838.7	0
08/11/2022	8800.41	0
09/11/2022	5975.57	0
10/11/2022	8378.94	0
11/11/2022	7685.91	0
12/11/2022	4278.45	0.2
13/11/2022	8964.66	13.8
14/11/2022	7858.88	21.2
15/11/2022	7700.04	3.4
16/11/2022	7909.3	0.2
17/11/2022	7303.94	0
18/11/2022	7054.43	0
19/11/2022	6116.54	0
20/11/2022	7590.49	0
21/11/2022	6008.72	0
22/11/2022	6075.86	0
23/11/2022	6174.66	0
24/11/2022	7948.67	0
25/11/2022	6957.83	0
26/11/2022	7433.44	0.8
27/11/2022	5232.59	1.6
28/11/2022	6161.68	0.8
29/11/2022	7146.84	0
30/11/2022	6445.89	0
Average	7101	1.6
Minimum	4278	0
Maximum	8965	21.2

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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	1095
December 2022		
January 2023		
February 2023		
March 2023		
April 2023		
May 2023		
June 2023		

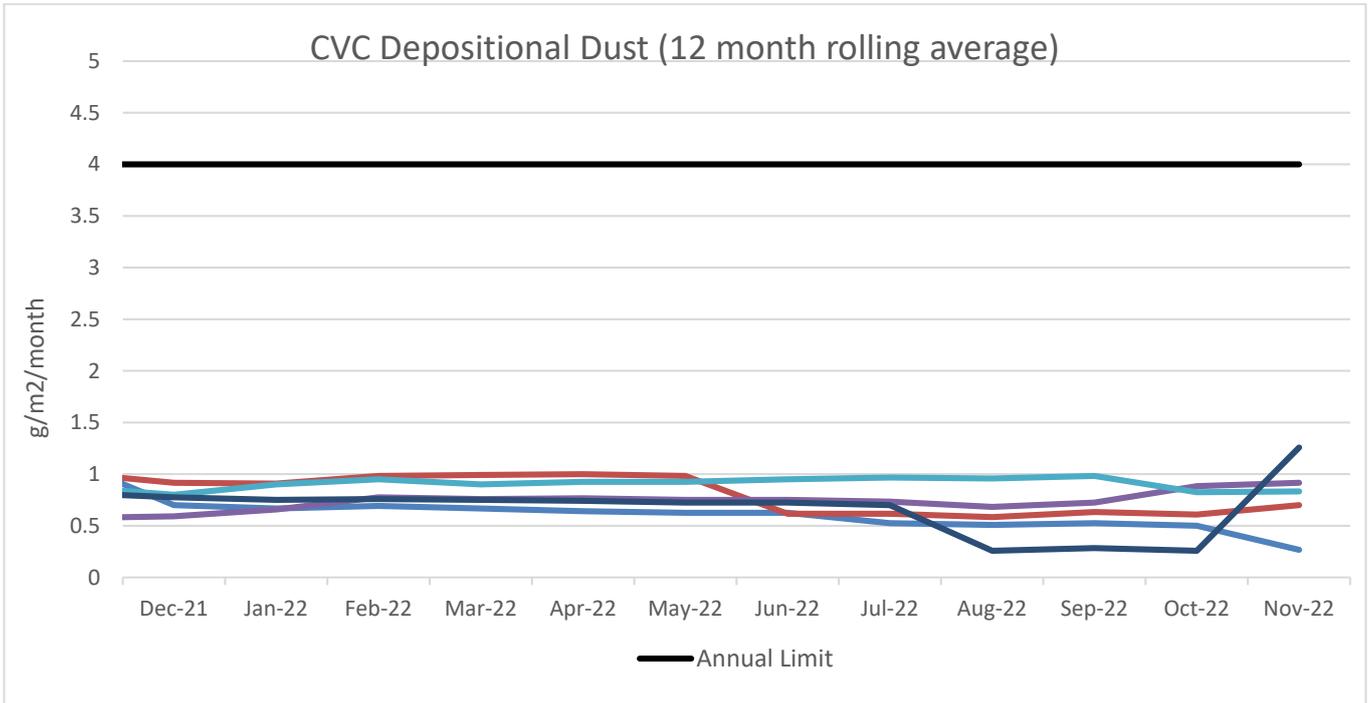
Air Quality - Depositional Dust

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.

November 2022	
EPL	1770
Limit	4g/m ² /month / Annum 2g/m ² /month increase from previous result
Sampling Date	04/10/2022 – 04/11/2022
Site	Insoluble Matter (g/m²/month)
DDG001	0.3
DDG002	1.3
DDG003	1.1
DDG004	0.8
DDG006	12.50*
Notes: For site locations refer to Chain Valley Colliery Air Quality Management Plan. *Notified to DPE and EPA, result considered anomalous to annual average values with no change in ventilation site operations.	

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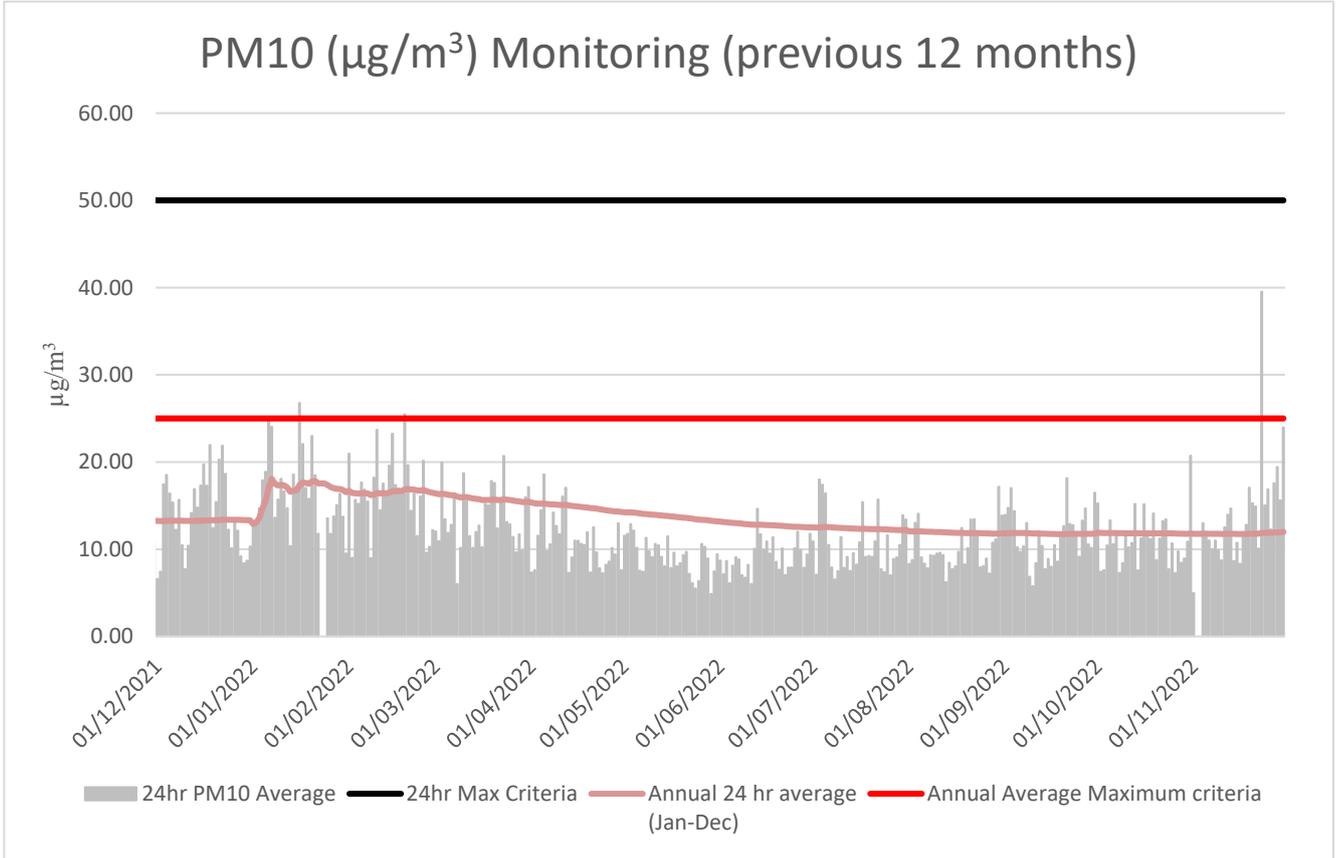
A 12-month rolling average of depositional dust concentrations has been presented below. Dust Gauges DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery and DDG006 is positioned in a location representative of the Chain Valley Colliery ventilation fan site 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 November 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 **98.8%** for the month of October 2022. It was noted that on the 23rd of November, an elevated result was observed (39.5 µg/m³), this was considered to be due to hazard reduction burns being undertaken within the region.

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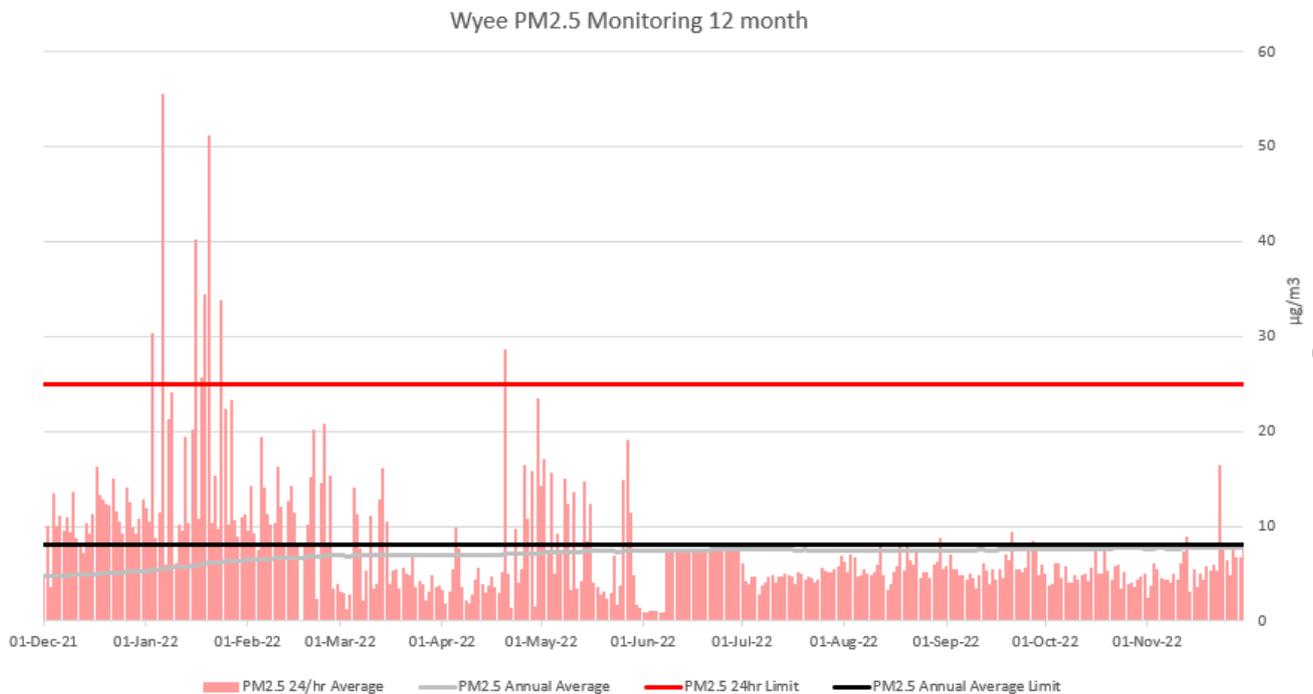
Variable	November	Total	Valid
A/C Temp	99.9%	8640	8629
A1	99.9%	8640	8629
A1_Scaled	99.9%	8640	8629
Bypass Flow	99.9%	8640	8629
Cap Temp	99.9%	8640	8629
Case Temp	99.9%	8640	8629
Config	99.9%	8640	8629
Dew Point	99.9%	8640	8629
Dig-In	99.9%	8640	8629
Dig-Latch	99.9%	8640	8629
ESN	99.9%	8640	8629
Filter Freq	99.9%	8640	8629
Filter Load	99.9%	8640	8629
Humidity	99.9%	8640	8629
MC	99.9%	8640	8629
MC 12Hr	99.9%	8640	8629
MC 1Hr	99.9%	8640	8629
MC 24Hr	99.9%	8640	8629
MC 30min	99.9%	8640	8629
MC 8Hr	99.9%	8640	8629
MC Total	99.9%	8640	8629
Mobile Signal	99.9%	8640	8629
Noise	99.9%	8640	8629
PM10 Flow	99.9%	8640	8629
Pressure	99.9%	8640	8629
Site	0.0%	8640	0
Temperature	99.9%	8640	8629
Tube Temp	99.9%	8640	8629
Vac Pressure	99.9%	8640	8629
Volts	99.9%	8640	8629

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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 31 October 2022 was 7.74 µg/m³. PM_{2.5} data availability for October 2022 was 99%. The 2022 year to date PM_{2.5} data availability was 99%.

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	12 December 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

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Variable	November	Total	Valid
Baro (Corrected)	94.4%	8640	8160
10m Temp	94.4%	8640	8160
2m Temp	94.4%	8640	8160
A1	94.4%	8640	8160
A1_Scaled	94.4%	8640	8160
Assumed Temp	94.4%	8640	8160
Barometric	94.4%	8640	8160
Config	94.4%	8640	8160
Daily Evap	94.4%	8640	8160
Daily Rain	94.4%	8640	8160
Delta T	94.4%	8640	8160
Dew Point	94.4%	8640	8160
Dig-In	94.4%	8640	8160
Dig-Latch	94.4%	8640	8160
ESN	94.4%	8640	8160
FDI	94.4%	8640	8160
Heat Index	94.4%	8640	8160
Humidity	94.4%	8640	8160
Mobile Signal	94.4%	8640	8160
Rain	94.4%	8640	8160
Raw Evap	94.4%	8640	8160
S Class	94.4%	8640	8160
Scalar WS	94.4%	8640	8160
Sigma	94.4%	8640	8160
Site	0.0%	8640	0
Solar Radiation	94.4%	8640	8160
Vector WD	94.4%	8640	8160
Vector WS	94.4%	8640	8160
Volts	94.4%	8640	8160
Wind Chill	94.4%	8640	8160
Wind Direction	94.4%	8640	8160
Wind Speed	94.4%	8640	8160
WS Avg	94.4%	8640	8160
WS Gust	94.4%	8640	8160