



Chain Valley Colliery Monthly Website Report – November 2023

Site:	Chain Valley Colliery
Department:	Technical Services
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Monthly Website Report

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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of November 2023.

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;
- 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 2023.

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 – October 2023

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 2023**

ALS Group - Dust Deposition Report **November 2023**

Development Consent SSD-5465 (as modified)

Environment Protection Licence (EPL) 1770 (Licence version date: 5 June 2023)

Monitoring Results

Water – Quality

Water quality results for November 2023 monthly surface water sampling at Chain Valley Colliery, Licensed Discharge Point (LDP 1) are presented below.

November 2023			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	06-11--2023		
Date Obtained	13-11-2023		
Sampling Point	LDP 1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	220
Faecal Coliforms	CFU/100mL	200	620
pH	pH	6.5-8.5	7.63
Total Sus. Solids (TSS)	mg/L	50	10
Electrical Conductivity	µS/cm	-	27,600

During the November 2023 monitoring period Faecal Coliforms was 620 CFU/100mL against the limit of 200 CFU/100mL.

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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 November 2023.

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)
01/11/2023	8030.09	1.2
02/11/2023	5466.48	0
03/11/2023	6458.43	0
04/11/2023	5829.88	4
05/11/2023	7734.62	25.6
06/11/2023	5863.86	0
07/11/2023	6573.03	0
08/11/2023	5423.44	0
09/11/2023	5061.57	18.4
10/11/2023	5534.99	0
11/11/2023	5255.17	0
12/11/2023	6430.39	0
13/11/2023	5482.14	0
14/11/2023	6526.47	0
15/11/2023	5481.33	0
16/11/2023	6427.22	3
17/11/2023	5404.47	6
18/11/2023	6021.42	0.2
19/11/2023	7583.55	0
20/11/2023	6113.47	0
21/11/2023	6559.06	0
22/11/2023	6472.35	0
23/11/2023	6973.81	0.8
24/11/2023	5299.06	4.2
25/11/2023	7029.55	5.6
26/11/2023	6117.02	0.2
27/11/2023	5979.7	0
28/11/2023	7293.13	1
29/11/2023	3199.31	16.8
30/11/2023	6256.13	0.2

Average	6129.37	2.91
Minimum	3199.31	0
Maximum	8030.09	25.6

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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 FY2023-2024		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative ML YTD)
July 2023	200	200
August 2023	212	412
September 2023	197	610
October 2023	205	815
November 2023	197	1013
December 2023		
January 2024		
February 2024		
March 2024		
April 2024		
May 2024		
June 2024		

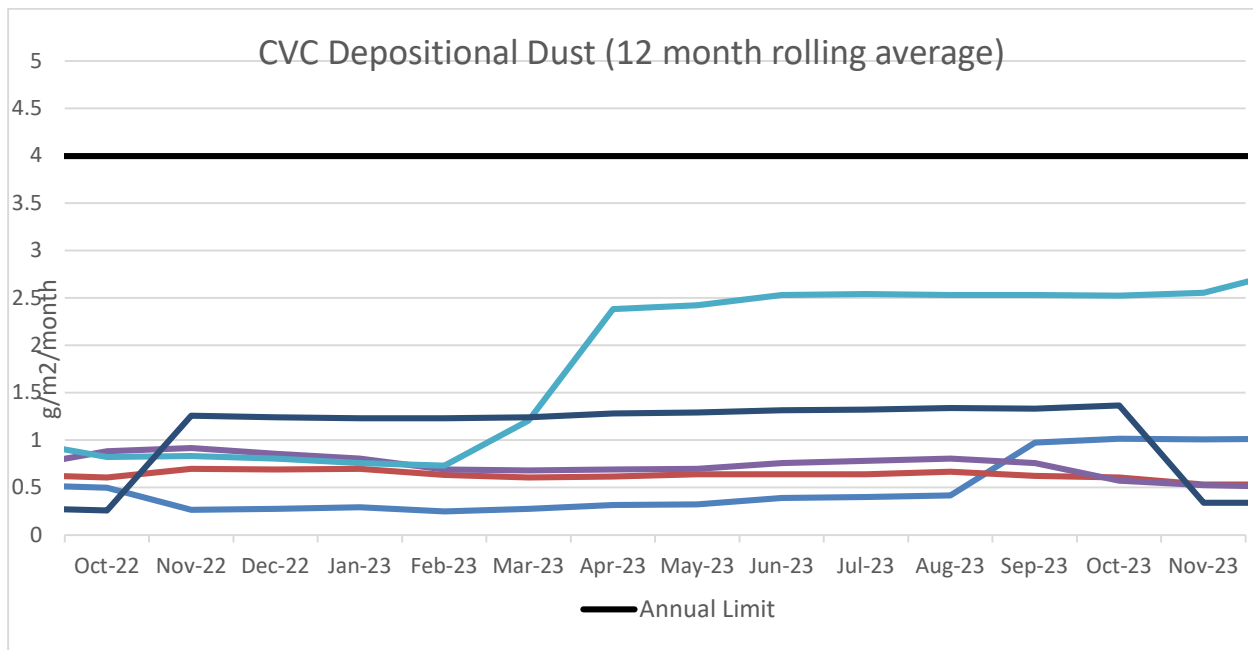
Air Quality - Depositional Dust

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 2023	
EPL	1770
Limit	4g/m ² /month / Annum 2g/m ² /month increase from previous result
Sampling Date	04/10/2023 – 04/11/2023
Site	Insoluble Matter (g/m2/month)
DDG001	0.2
DDG002	0.4
DDG003	0.5
DDG004	1.5
DDG006	0.2
Notes: For site locations refer to the Delta Coal Air Quality and Greenhouse Gas Management Plan.	

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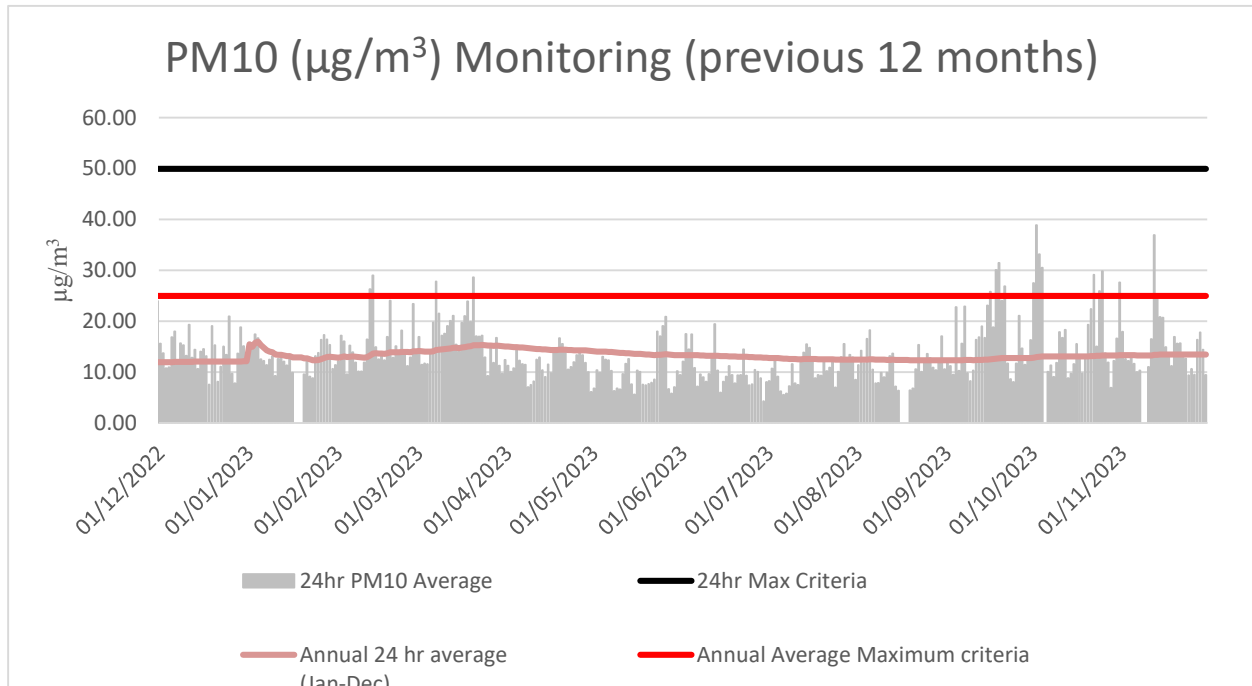
A 12-month rolling average of depositional dust concentrations has been presented below. Dust Gauges DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery and DDG006 is positioned in a location representative of the Chain Valley Colliery ventilation fan site 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 November 2023 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 97.3% for the month of November 2023.

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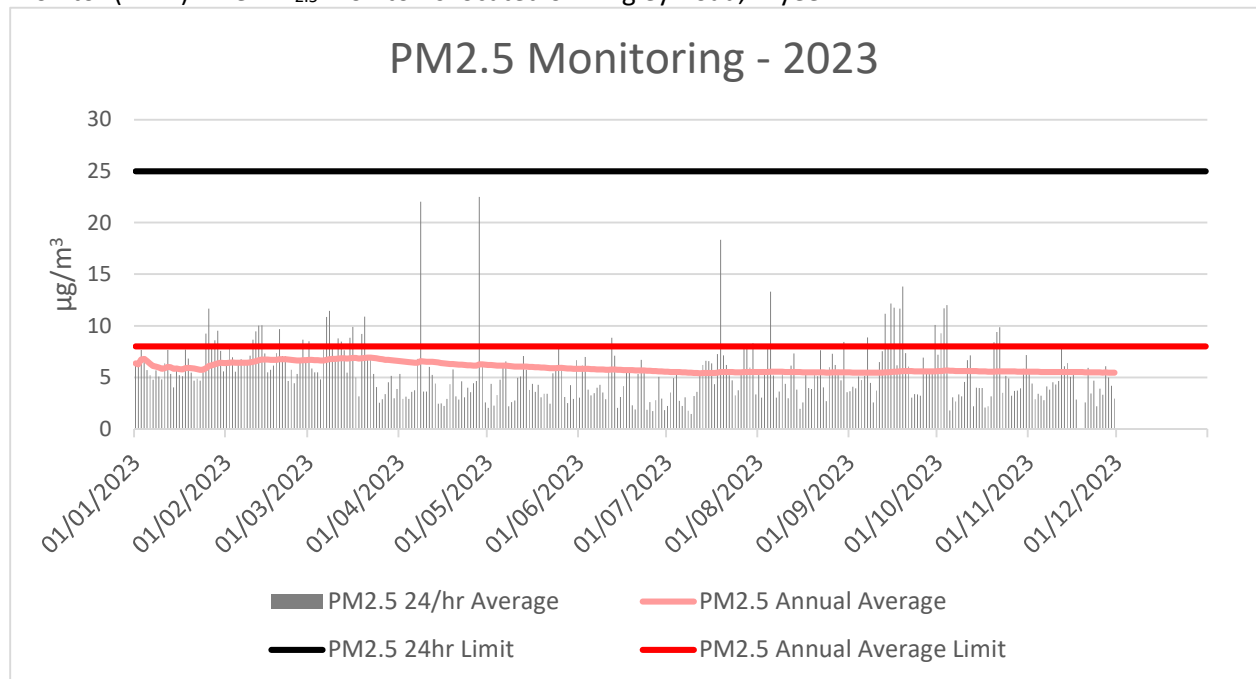
Variable	November	Total	Valid
A/C Temp	100%	8640	8636
A1	100%	8640	8636
A1_Scaled	100%	8640	8636
Bypass Flow	100%	8640	8636
Cap Temp	100%	8640	8636
Case Temp	100%	8640	8636
Config	100%	8640	8636
Dew Point	100%	8640	8636
Dig-In	100%	8640	8636
Dig-Latch	100%	8640	8636
ESN	100%	8640	8636
Filter Freq	100%	8640	8636
Filter Load	100%	8640	8636
Humidity	100%	8640	8636
MC	100%	8640	8636
MC 12Hr	100%	8640	8636
MC 1Hr	100%	8640	8636
MC 24Hr	100%	8640	8636
MC 30min	100%	8640	8636
MC 8Hr	100%	8640	8636
MC Total	100%	8640	8636
Mobile Signal	100%	8640	8636
Noise	100%	8640	8636
PM10 Flow	100%	8640	8636
Pressure	100%	8640	8636
Site	0.0%	8640	0
Temperature	100%	8640	8636
Tube Temp	100%	8640	8636
Vac Pressure	100%	8640	8636
Volts	100%	8640	8636

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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.



There were no exceedances of the PM_{2.5} daily average limit in October or November 2023. The 12-month rolling average PM_{2.5} value on 30 November 2023 was 5.46 µg/m³. PM_{2.5} data availability in September and October 2023 was 98% and 90% respectively. The 2023 year to date PM_{2.5} data availability is 98.05%.

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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 2023			
Licensee	Great Southern Energy Pty Ltd		
Location	Mannering Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	11 November 2023		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-23	112	14.4	31.7
Feb-23	91	12.6	33.2
Mar-23	116	9.4	38.7
Apr-23	96	6.8	26.7
May-23	59.2	2.8	23.9
June-23	8.4	1.6	24.7
July-23	40.2	1.9	25.4
Aug -23	57.8	4.2	27.1
Sept-23	13.4	2.4	34.5
Oct-23	92	6.9	35.2
Nov-23	87.2	11.2	30.2

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Variable	November	Total	Valid
Baro (Corrected)	100%	2880	2880
10m Temp	100%	2880	2880
2m Temp	100%	2880	2880
A1	100%	2880	2880
A1_Scaled	100%	2880	2880
Assumed Temp	100%	2880	2880
Barometric	100%	2880	2880
Config	100%	2880	2880
Daily Evap	100%	2880	2880
Daily Rain	100%	2880	2880
Delta T	100%	2880	2880
Dew Point	100%	2880	2880
Dig-In	100%	2880	2880
Dig-Latch	100%	2880	2880
ESN	100%	2880	2880
FDI	100%	2880	2880
Heat Index	100%	2880	2880
Humidity	100%	2880	2880
Mobile Signal	100%	2880	2880
Rain	100%	2880	2880
Raw Evap	100%	2880	2880
S Class	100%	2880	2880
Scalar WS	100%	2880	2880
Sigma	100%	2880	2880
Site	0.0%	2880	0
Solar Radiation	100%	2880	2880
Vector WD	100%	2880	2880
Vector WS	100%	2880	2880
Volts	100%	2880	2880
Wind Chill	100%	2880	2880
Wind Direction	100%	2880	2880
Wind Speed	100%	2880	2880
WS Avg	100%	2880	2880
WS Gust	100%	2880	2880