



Chain Valley Colliery Monthly Website Report – October 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 October 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 October 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 **October 2023**

ALS Group - Dust Deposition Report **October 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 October 2023 monthly surface water sampling at Chain Valley Colliery, Licensed Discharge Point (LDP 1) are presented below.

October 2023			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	24-10-2023		
Date Obtained	31-10-2023		
Sampling Point	LDP 1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	30
Faecal Coliforms	CFU/100mL	200	120
pH	pH	6.5-8.5	7.72
Total Sus. Solids (TSS)	mg/L	50	<5
Electrical Conductivity	µS/cm	-	31,200

There were no water quality exceedances at CVC's licensed discharge points for monitoring undertaken in October 2023.

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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 October 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)
01/10/2023	5510	0
02/10/2023	5931	0
03/10/2023	5961	0
04/10/2023	6100	8.6
05/10/2023	6156	0.2
06/10/2023	6349	3.8
07/10/2023	6478	1.2
08/10/2023	6382	0
09/10/2023	6297	0
10/10/2023	6411	0
11/10/2023	6417	0
12/10/2023	6479	0
13/10/2023	5598	0
14/10/2023	6419	0
15/10/2023	6585	0
16/10/2023	5522	0
17/10/2023	5571	1
18/10/2023	6552	0
19/10/2023	4869	0
20/10/2023	6783	0
21/10/2023	5707	0
22/10/2023	6846	0
23/10/2023	4707	0
24/10/2023	6869	0
25/10/2023	5879	1.2
26/10/2023	7279	37.8
27/10/2023	7304	38
28/10/2023	7217	0.2
29/10/2023	5719	0
30/10/2023	7621	0

Average	6226	3
Minimum	4707	0
Maximum	7621	38

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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		
December 2023		
January 2024		
February 2024		
March 2024		
April 2024		
May 2024		
June 2024		

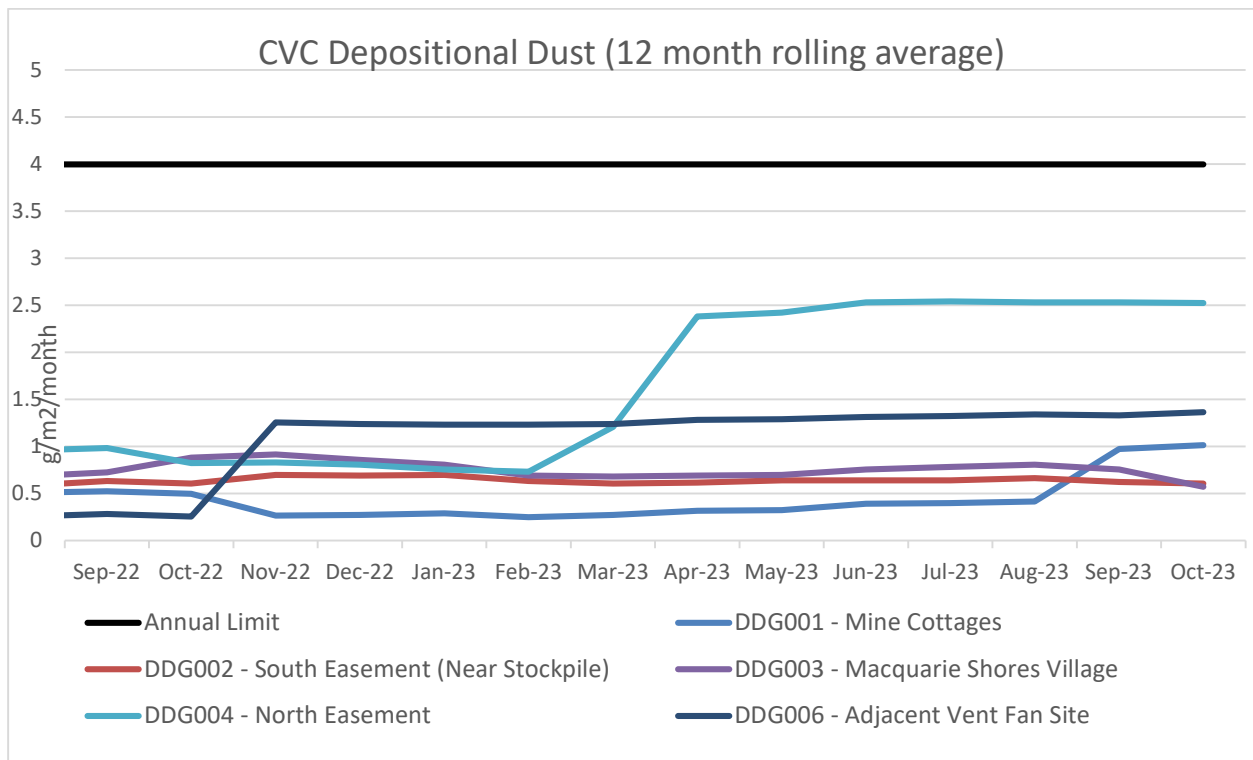
Air Quality - Depositional Dust

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.

October 2023	
EPL	1770
Limit	4g/m ² /month / Annum 2g/m ² /month increase from previous result
Sampling Date	04/09/2023 – 04/10/2023
Site	Insoluble Matter (g/m2/month)
DDG001	0.8
DDG002	0.5
DDG003	0.2
DDG004	0.7
DDG006	0.5
Notes: For site locations refer to the Delta Coal Air Quality and Greenhouse Gas Management Plan.	

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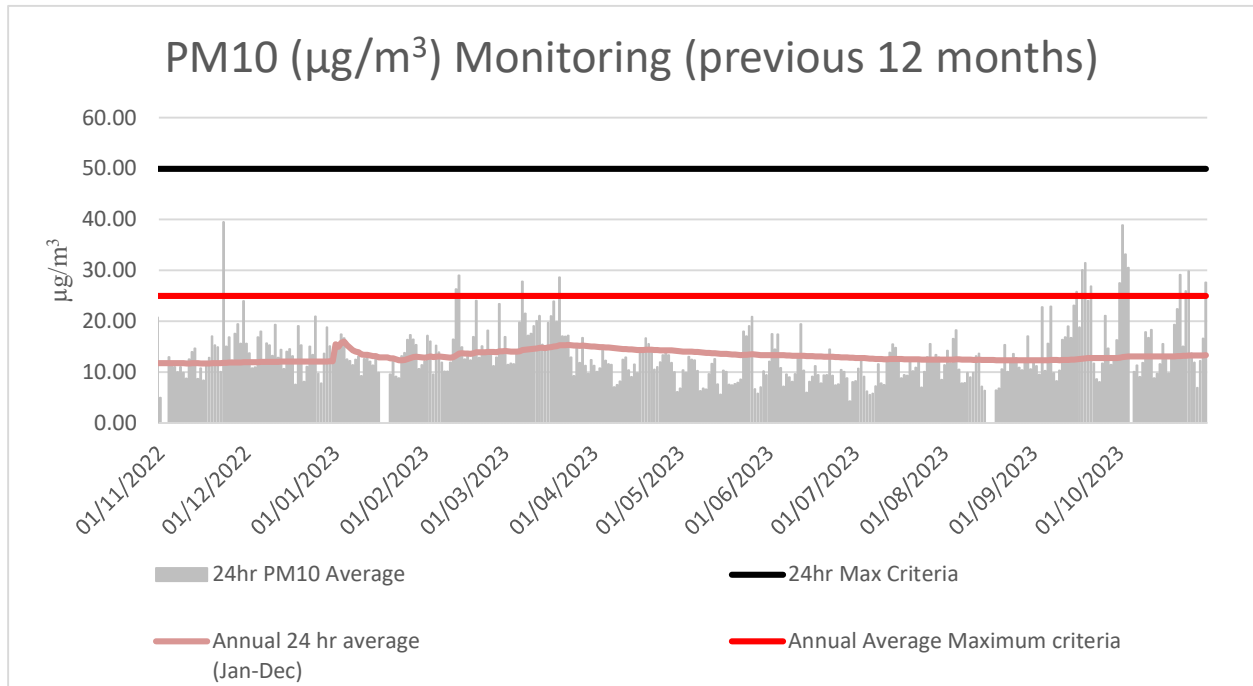
A 12-month rolling average of depositional dust concentrations has been presented below. Dust Gauges DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery and DDG006 is positioned in a location representative of the Chain Valley Colliery ventilation fan site 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 October 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 **97.7%** for the month of October 2023.

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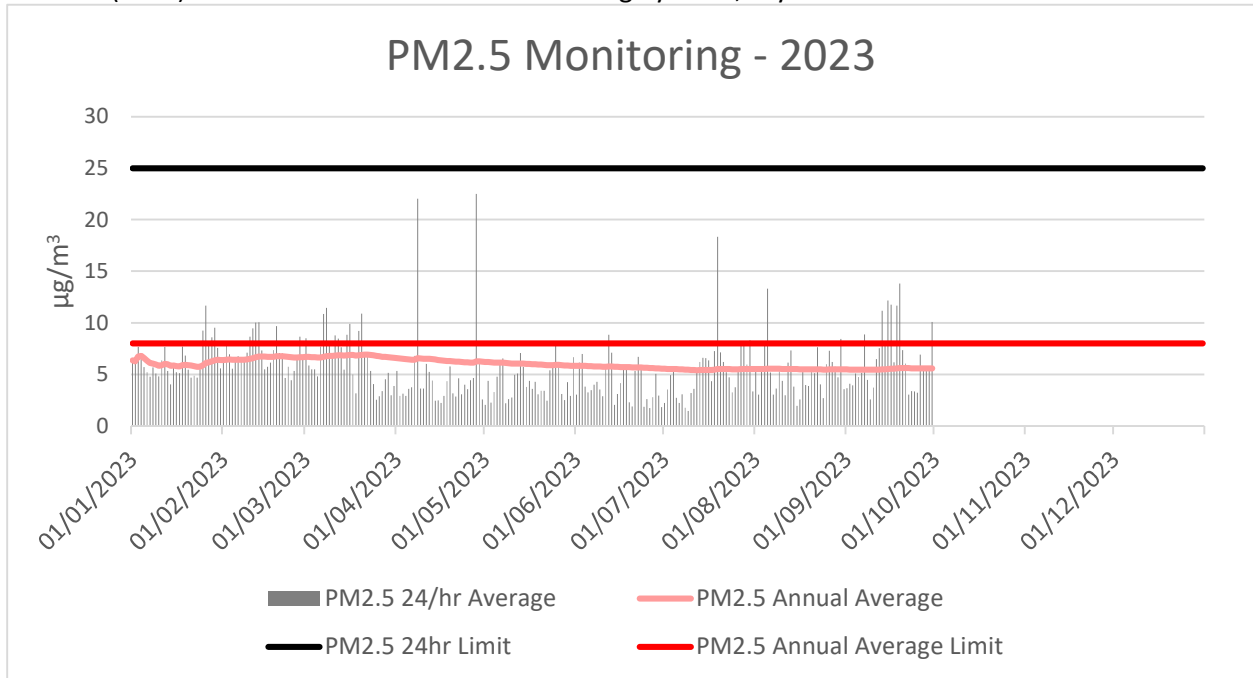
Variable	October	Total	Valid
A/C Temp	97.8%	8928	8735
A1	97.8%	8928	8735
A1_Scaled	97.8%	8928	8735
Bypass Flow	97.8%	8928	8735
Cap Temp	97.8%	8928	8735
Case Temp	97.8%	8928	8735
Config	97.8%	8928	8735
Dew Point	97.8%	8928	8735
Dig-In	97.8%	8928	8735
Dig-Latch	97.8%	8928	8735
ESN	97.8%	8928	8735
Filter Freq	97.8%	8928	8735
Filter Load	97.8%	8928	8735
Humidity	97.8%	8928	8735
MC	97.8%	8928	8735
MC 12Hr	97.8%	8928	8735
MC 1Hr	97.8%	8928	8735
MC 24Hr	97.8%	8928	8735
MC 30min	97.8%	8928	8735
MC 8Hr	97.8%	8928	8735
MC Total	97.8%	8928	8735
Mobile Signal	97.8%	8928	8735
Noise	97.8%	8928	8735
PM10 Flow	97.8%	8928	8735
Pressure	97.8%	8928	8735
Site	0.0%	8928	0
Temperature	97.8%	8928	8735
Tube Temp	97.8%	8928	8735
Vac Pressure	97.8%	8928	8735
Volts	97.8%	8928	8735

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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 September 2023. The 12-month rolling average PM_{2.5} value on 30 September 2023 was 5.59 µg/m³. PM_{2.5} data availability in September 2023 was 99%. The 2023 year to date PM_{2.5} data availability is 98.05%.

It is noted that due to the external validation of PM_{2.5} results, there is a one-month delay in publishing PM_{2.5} results, however, real-time alarms remain active to ensure mitigation responses to elevated results can be applied when necessary.

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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	7 October 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

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Variable	October	Total	Valid
Baro (Corrected)	99.8%	2976	2971
10m Temp	99.8%	2976	2971
2m Temp	99.8%	2976	2971
A1	99.8%	2976	2971
A1_Scaled	99.8%	2976	2971
Assumed Temp	99.8%	2976	2971
Barometric	99.8%	2976	2971
Config	99.8%	2976	2971
Daily Evap	99.8%	2976	2971
Daily Rain	99.8%	2976	2971
Delta T	99.8%	2976	2971
Dew Point	99.8%	2976	2971
Dig-In	99.8%	2976	2971
Dig-Latch	99.8%	2976	2971
ESN	99.8%	2976	2971
FDI	99.8%	2976	2971
Heat Index	99.8%	2976	2971
Humidity	99.8%	2976	2971
Mobile Signal	99.8%	2976	2971
Rain	99.8%	2976	2971
Raw Evap	99.8%	2976	2971
S Class	99.8%	2976	2971
Scalar WS	99.8%	2976	2971
Sigma	99.8%	2976	2971
Site	0.0%	2976	0
Solar Radiation	99.8%	2976	2971
Vector WD	99.8%	2976	2971
Vector WS	99.8%	2976	2971
Volts	99.8%	2976	2971
Wind Chill	99.8%	2976	2971
Wind Direction	99.8%	2976	2971
Wind Speed	99.8%	2976	2971
WS Avg	99.8%	2976	2971
WS Gust	99.8%	2976	2971