



Chain Valley Colliery Monthly Website Report – September 2023

Site:	Chain Valley Colliery
Department:	Technical Services
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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of September 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 Environmental 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 Environmental 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 September 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 – June 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 **September 2023**

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

September 2023			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	19-09-2023		
Date Obtained	25-09-2023		
Sampling Point	LDP 1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	4
Faecal Coliforms	CFU/100mL	200	180
pH	pH	6.5-8.5	7.66
Total Sus. Solids (TSS)	mg/L	50	<5
Electrical Conductivity	µS/cm	-	33,300

There were no water quality exceedances at CVC's licensed discharge points for monitoring undertaken in September 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 September 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)
01/09/2023	659.82	0.6
02/09/2023	938.58	0
03/09/2023	0	0
04/09/2023	0	4.2
05/09/2023	0	0.4
06/09/2023	845.61	0
07/09/2023	860.45	0
08/09/2023	965.01	3.2
09/09/2023	1316.59	0
10/09/2023	1332.06	0
11/09/2023	1317.89	0
12/09/2023	1315.04	0
13/09/2023	1292.67	0
14/09/2023	1302.99	0.2
15/09/2023	993.7	0
16/09/2023	883.18	0
17/09/2023	1309.82	0
18/09/2023	1312.61	0
19/09/2023	1306.26	0
20/09/2023	878.24	0
21/09/2023	1284.97	1
22/09/2023	1283.63	0.6
23/09/2023	1305.15	0
24/09/2023	1263.64	0
25/09/2023	647.81	0
26/09/2023	1032.99	0.6
27/09/2023	518.03	0.2
28/09/2023	1287.64	2.2
29/09/2023	1225.97	0
30/09/2023	531.4	0.2

Average	974	0.45
Minimum	0	0
Maximum	1332	4.2

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

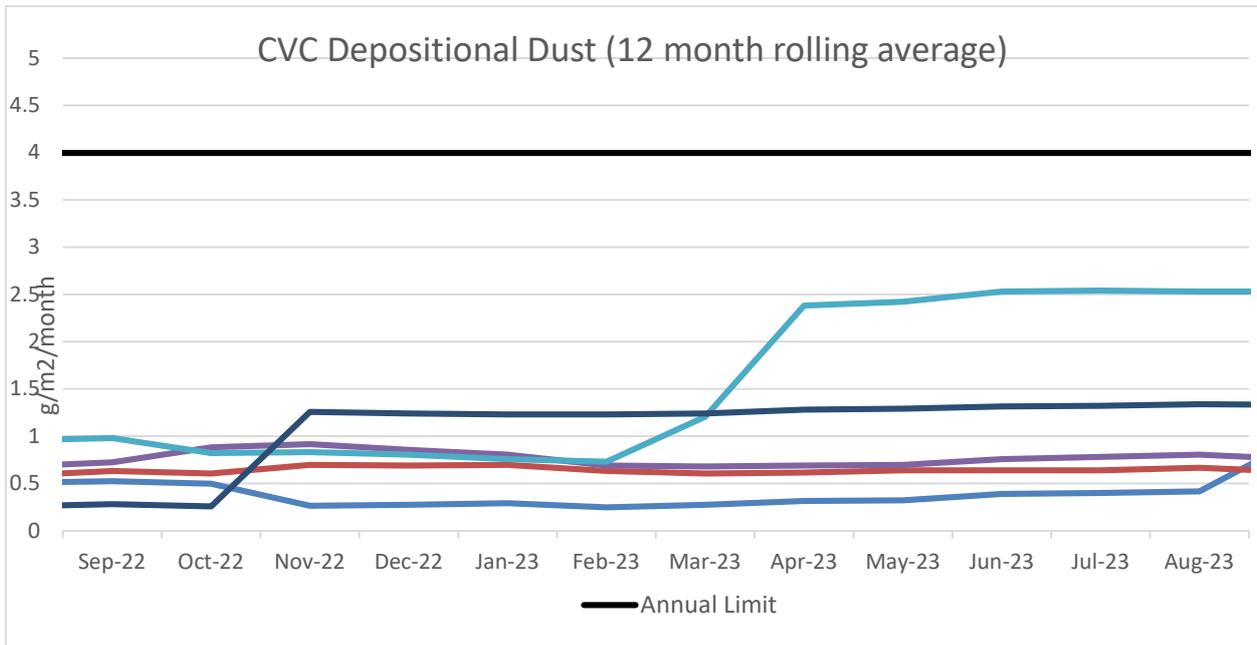
Air Quality - Depositional Dust

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.

September 2023	
EPL	1770
Limit	4g/m ² /month / Annum 2g/m ² /month increase from previous result
Sampling Date	04/08/2023 – 04/09/2023
Site	Insoluble Matter (g/m²/month)
DDG001	7.3
DDG002	0.6
DDG003	0.4
DDG004	0.9
DDG006	0.3
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.

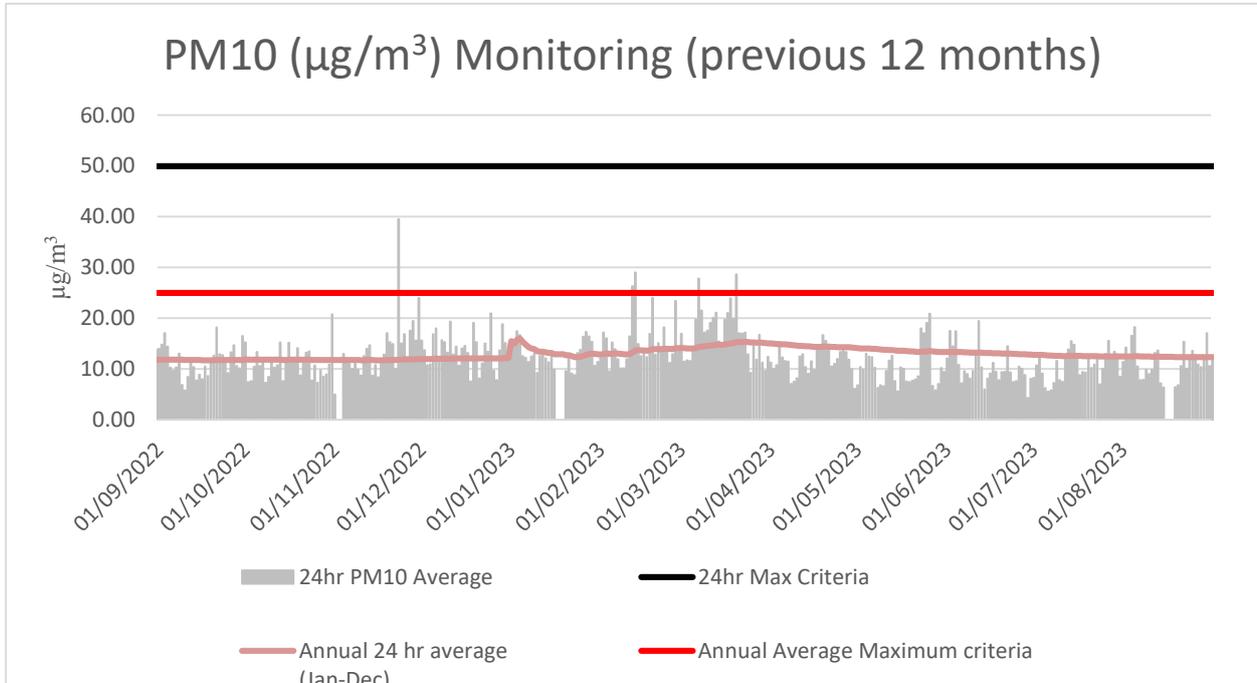
There was an exceedance to the maximum total increase in deposited dust level (increase greater than 2 g/m²/month) at DDG001 for the sampling period. The monthly depositional dust level increased from 0.3 g/m²/month to 7.3 g/m²/month. The 12 month rolling average result remains below the annual limit of 4g/m² /month.

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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 September 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 September 2023.

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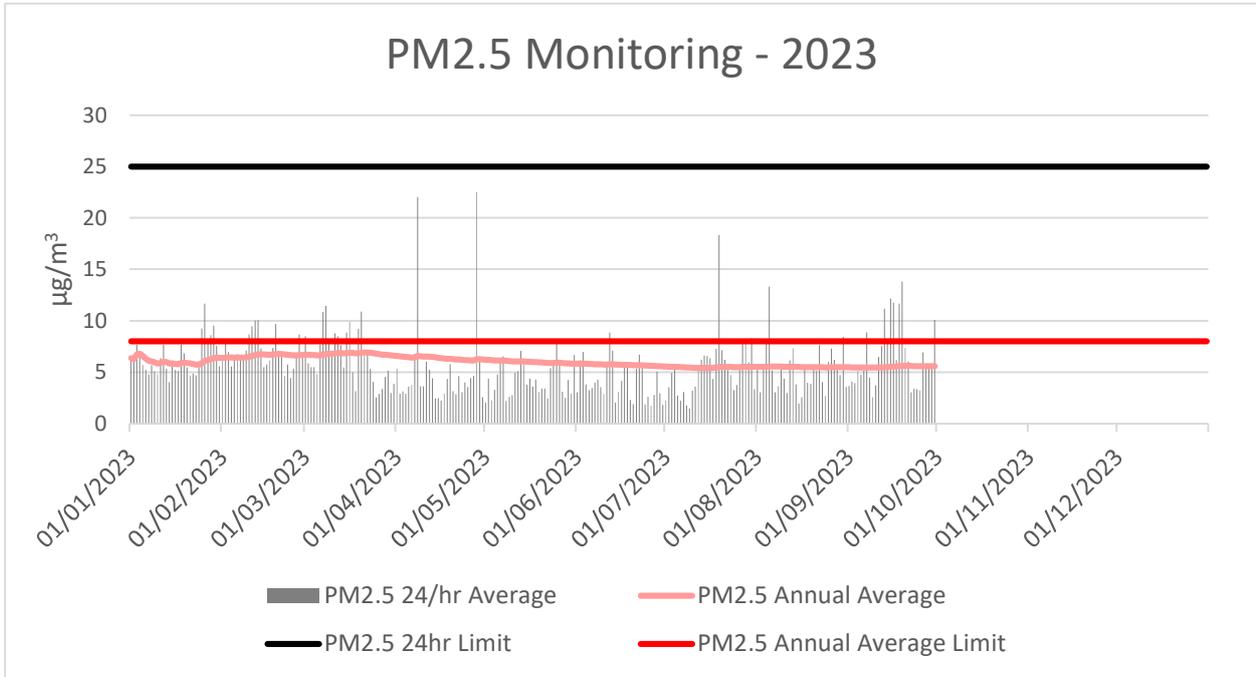
Variable	September	Total	Valid
A/C Temp	99.9%	8640	8629
A1	99.9%	8640	8629
A1_Scaled	99.9%	8640	8629
Bypass Flow	99.9%	8640	8628
Cap Temp	99.9%	8640	8629
Case Temp	99.9%	8640	8628
Config	99.9%	8640	8629
Dew Point	99.9%	8640	8629
Dig-In	99.9%	8640	8629
Dig-Latch	99.9%	8640	8629
ESN	99.9%	8640	8629
Filter 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	8628
Pressure	99.9%	8640	8629
Site	0.0%	8640	0
Temperature	99.9%	8640	8629
Tube Temp	99.9%	8640	8628
Vac Pressure	99.9%	8640	8629
Volts	99.9%	8640	8629

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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 $\mu\text{g}/\text{m}^3$. PM_{2.5} data availability in September 2023 was 99%. 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	12 September 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

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Variable	September	Total	Valid
Baro (Corrected)	99.8%	2880	2875
10m Temp	99.8%	2880	2875
2m Temp	99.8%	2880	2875
A1	99.8%	2880	2875
A1_Scaled	99.8%	2880	2875
Assumed Temp	99.8%	2880	2875
Barometric	99.8%	2880	2875
Config	99.8%	2880	2875
Daily Evap	99.8%	2880	2875
Daily Rain	99.8%	2880	2875
Delta T	99.8%	2880	2875
Dew Point	99.8%	2880	2875
Dig-In	99.8%	2880	2875
Dig-Latch	99.8%	2880	2875
ESN	99.8%	2880	2875
FDI	99.8%	2880	2875
Heat Index	99.8%	2880	2875
Humidity	99.8%	2880	2875
Mobile Signal	99.8%	2880	2875
Rain	99.8%	2880	2875
Raw Evap	99.8%	2880	2875
S Class	99.8%	2880	2875
Scalar WS	99.8%	2880	2875
Sigma	99.8%	2880	2875
Site	0.0%	2880	0
Solar Radiation	99.8%	2880	2875
Vector WD	99.8%	2880	2875
Vector WS	99.8%	2880	2875
Volts	99.8%	2880	2875
Wind Chill	99.8%	2880	2875
Wind Direction	99.8%	2880	2875
Wind Speed	99.8%	2880	2875
WS Avg	99.8%	2880	2875
WS Gust	99.8%	2880	2875