Chain Valley Colliery Monthly Website Report – August 2023

Site:	**Chain Valley Colliery**
Department:	**Technical Services**
Report Title:	**Monthly Environmental Website Report – August 2023**
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Distribution:	**Delta Coal Website**

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Summary

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

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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 – PM_{10}
- Air Quality – $PM_{2.5}$; and
- Meteorological data.

Definitions

g/m^2/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.

References

ALS Group - Monthly Water Monitoring Results **August 2023**

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

August 2023			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	22-08-2023		
Date Obtained	28-08-2023		
Sampling Point	LDP 1		
Parameter	**Units**	**Limit**	**Result**
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	9
Faecal Coliforms	CFU/100mL	200	45
pH	pH	6.5-8.5	7.74
Total Sus. Solids (TSS)	mg/L	50	<5
Electrical Conductivity	µS/cm	-	32,900

There were no water quality exceedances at CVC's licensed discharge points for monitoring undertaken in August 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 August 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)
01/08/2023	5542.34	0.2
02/08/2023	5989.16	0.6
03/08/2023	6521.59	0
04/08/2023	10579.23	0.2
05/08/2023	9989.16	0.2
06/08/2023	7676.1	19
07/08/2023	8411.49	0.2
08/08/2023	7180.84	0
09/08/2023	6836.6	0.2
10/08/2023	8301.9	0
11/08/2023	6120.6	0
12/08/2023	6603.89	0.2
13/08/2023	6268.99	3.6
14/08/2023	6479.62	14.2
15/08/2023	6235.39	0.6
16/08/2023	6028.01	0.2
17/08/2023	5686.93	1.4
18/08/2023	4438.83	6
19/08/2023	5496.32	0
20/08/2023	5982.84	0
21/08/2023	6009.27	0
22/08/2023	6000.56	2.4
23/08/2023	6045.79	1.2
24/08/2023	6115.02	0
25/08/2023	6051.64	0
26/08/2023	6158.26	0.2
27/08/2023	6138.49	0
28/08/2023	6050.35	0.2
29/08/2023	6039.03	0
30/08/2023	5623.88	6.8
31/08/2023	5479.96	0.2

Average	6518.78	1.86
Minimum	4438.83	0
Maximum	10579.23	19

Water – Groundwater Discharge

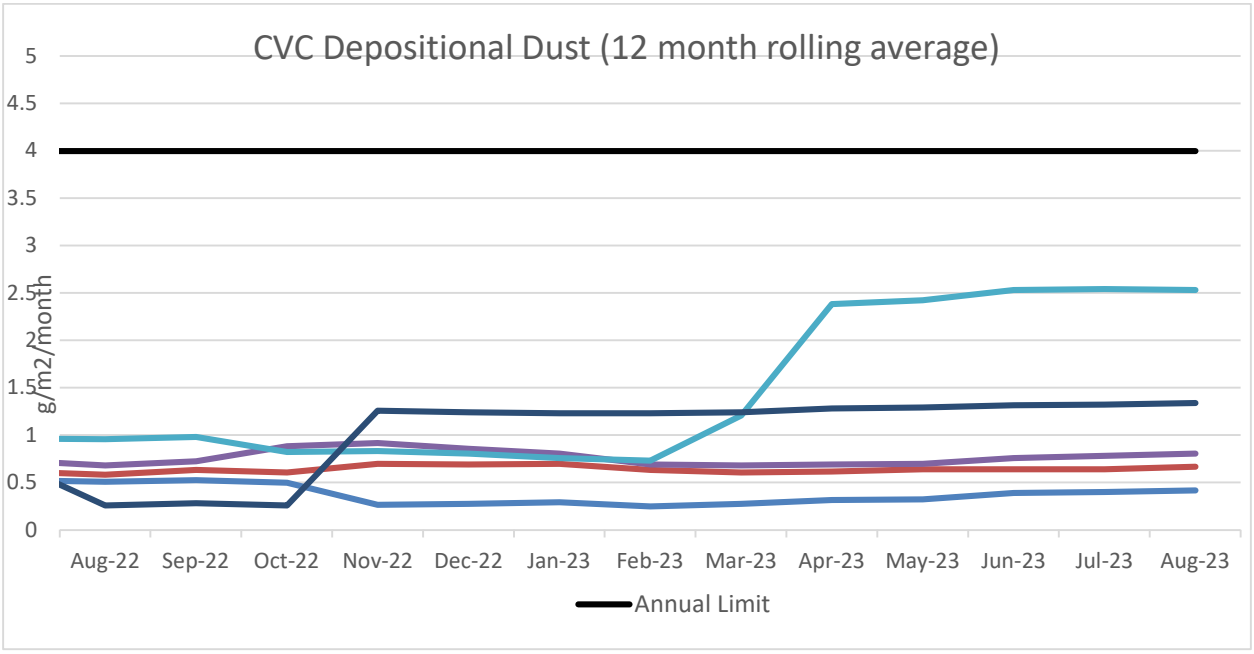
Groundwater discharged from underground workings to the CVC sedimentation ponds within the surface operational area has been detailed below. Chain Valley Colliery operates Water Access License (WAL 41508) permitting the extraction of 4,443 megalitres per water year (financial year calendar) with a roll-over 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		
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.

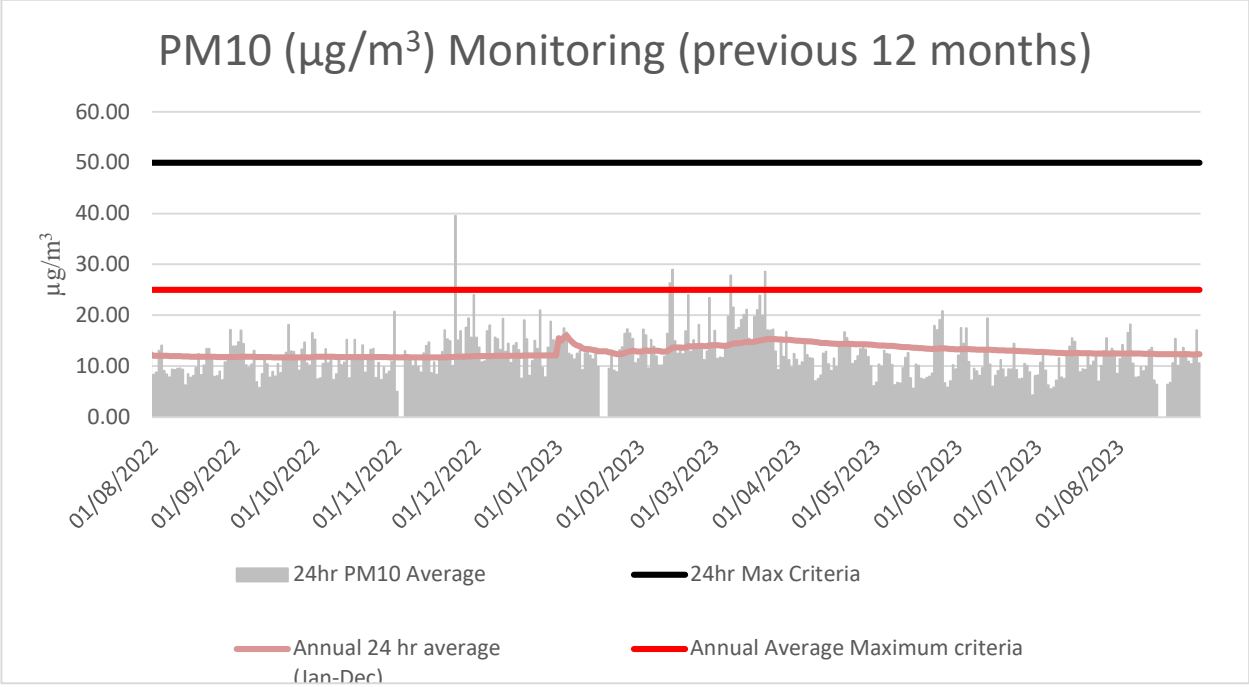
August 2023	
EPL	1770
Limit	4g/m² /month / Annum 2g/m² /month increase from previous result
Sampling Date	06/07/2023 – 04/08/2023
Site	Insoluble Matter (g/m2/month)
DDG001	0.2
DDG002	0.2
DDG003	0.3
DDG004	0.2
DDG006	0.2
Notes: For site locations refer to the Delta Coal Air Quality and Greenhouse Gas Management Plan.	



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.

Air Quality – PM_{10}

The 24hr PM_{10} average from Delta Coal's Tapered Element Osciliating Microbalance (TEOM), located at the Mannering Park Sewage Treatment Plant, is presented below for the previous 12 months.



Annual 24hr PM_{10} average maximum criteria for August 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 **90.3%** for the month of August 2023.

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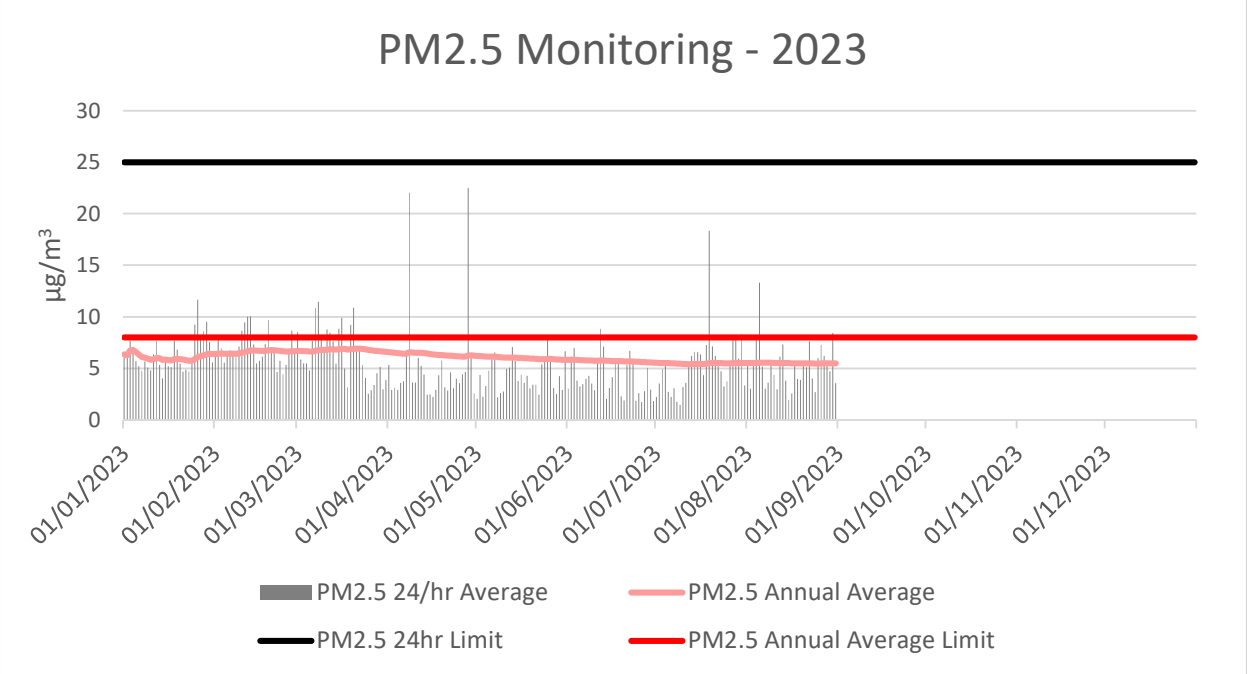
Variable	August	Total	Valid
A/C Temp	100%	8928	8928
A1	100%	8928	8928
A1_Scaled	100%	8928	8928
Bypass Flow	100%	8928	8928
Cap Temp	100%	8928	8928
Case Temp	100%	8928	8928
Config	100%	8928	8928
Dew Point	100%	8928	8928
Dig-In	100%	8928	8928
Dig-Latch	100%	8928	8928
ESN	100%	8928	8928
Filter Freq	100%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

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 July 2023.The 12-month rolling average $PM_{2.5}$ value on 31 July 2023 was 5.52 $\mu g/m^3$. $PM_{2.5}$ data availability in July 2023 was 99%. The 2023 year to date $PM_{2.5}$ data availability is 98.90%.

$PM_{2.5}$ data availability is normally delayed one-month for external data validation. However, the data has become available early and included in this month's report for August. There were no exceedances of the $PM_{2.5}$ daily average limit in August 2023.The 12-month rolling average $PM_{2.5}$ value on 31 August 2023 was 5.47 $\mu g/m^3$. $PM_{2.5}$ data availability in August 2023 was 100%. The 2023 year to date $PM_{2.5}$ data availability is 99.02%.

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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	3 August 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

Variable	August	Total	Valid
Baro (Corrected)	100%	2976	2976
10m Temp	100%	2976	2976
2m Temp	100%	2976	2976
A1	100%	2976	2976
A1_Scaled	100%	2976	2976
Assumed Temp	100%	2976	2976
Barometric	100%	2976	2976
Config	100%	2976	2976
Daily Evap	100%	2976	2976
Daily Rain	100%	2976	2976
Delta T	100%	2976	2976
Dew Point	100%	2976	2976
Dig-In	100%	2976	2976
Dig-Latch	100%	2976	2976
ESN	100%	2976	2976
FDI	100%	2976	2976
Heat Index	100%	2976	2976
Humidity	100%	2976	2976
Mobile Signal	100%	2976	2976
Rain	100%	2976	2976
Raw Evap	100%	2976	2976
S Class	100%	2976	2976
Scalar WS	100%	2976	2976
Sigma	100%	2976	2976
Site	0.0%	2976	0
Solar Radiation	100%	2976	2976
Vector WD	100%	2976	2976
Vector WS	100%	2976	2976
Volts	100%	2976	2976
Wind Chill	100%	2976	2976
Wind Direction	100%	2976	2976
Wind Speed	100%	2976	2976
WS Avg	100%	2976	2976
WS Gust	100%	2976	2976