



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

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

June 2023			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	13-06-2023		
Date Obtained	20-06-2023		
Sampling Point	LDP 1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	27
Faecal Coliforms	CFU/100mL	200	13
pH	pH	6.5-8.5	7.76
Total Sus. Solids (TSS)	mg/L	50	<5
Electrical Conductivity	µS/cm	-	31,900

There were no water quality exceedances at CVC's licensed discharge points for monitoring undertaken in June 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 June 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)
01/06/2023	6025.17	0
02/06/2023	7288.28	0.2
03/06/2023	5516.6	0.2
04/06/2023	5889.08	0
05/06/2023	5207.14	0
06/06/2023	7681.34	1
07/06/2023	6995.22	0
08/06/2023	6321.45	1.4
09/06/2023	5833.98	0.2
10/06/2023	6708.22	0.2
11/06/2023	6402.65	0
12/06/2023	7199.67	0.2
13/06/2023	6233.75	0.8
14/06/2023	6153.19	0.2
15/06/2023	6110.58	0
16/06/2023	6231.16	0.2
17/06/2023	6250.53	0
18/06/2023	6169.6	0.2
19/06/2023	6151.69	0
20/06/2023	6071.51	0
21/06/2023	6121.29	0
22/06/2023	6185.63	1
23/06/2023	6197.83	2.2
24/06/2023	6107.66	0
25/06/2023	6166.49	0
26/06/2023	6168.3	0
27/06/2023	6312.28	0
28/06/2023	5789.3	0.2
29/06/2023	6190.99	0.2
30/06/2023	6173.07	0
Average	6262	0.3
Minimum	5207	0
Maximum	7681	2.2

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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	1,095
December 2022	215	1,310
January 2023	206	1,516
February 2023	194	1,710
March 2023	221	1,931
April 2023	199	2,129
May 2023	213	2,342
June 2023	194	2,537

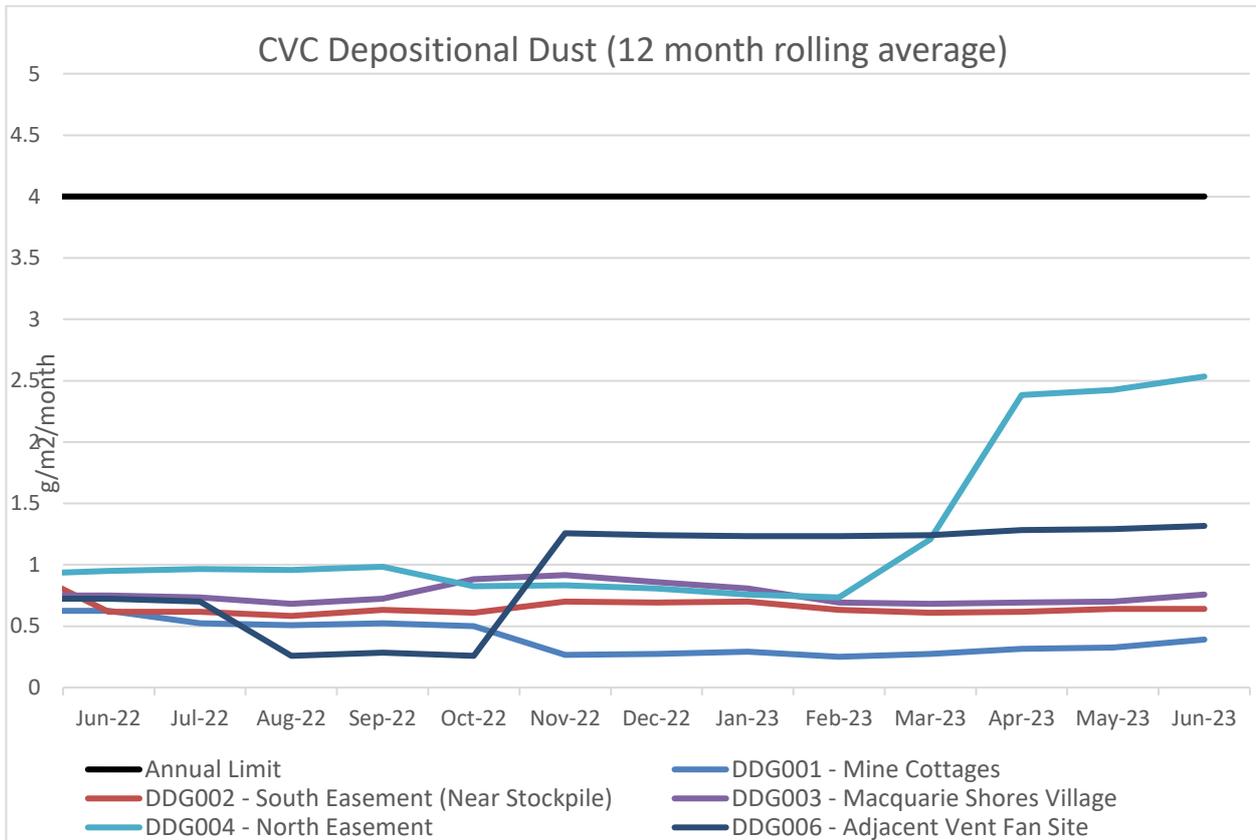
Air Quality - Depositional Dust

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.

June 2023	
EPL	1770
Limit	4g/m ² /month / Annum 2g/m ² /month increase from previous result
Sampling Date	04/05/2023 – 05/06/2023
Site	Insoluble Matter (g/m²/month)
DDG001	1.1
DDG002	0.6
DDG003	1.0
DDG004	2.1
DDG006	0.4
Notes: For site locations refer to the Delta Coal Air Quality and Greenhouse Gas Management Plan.	

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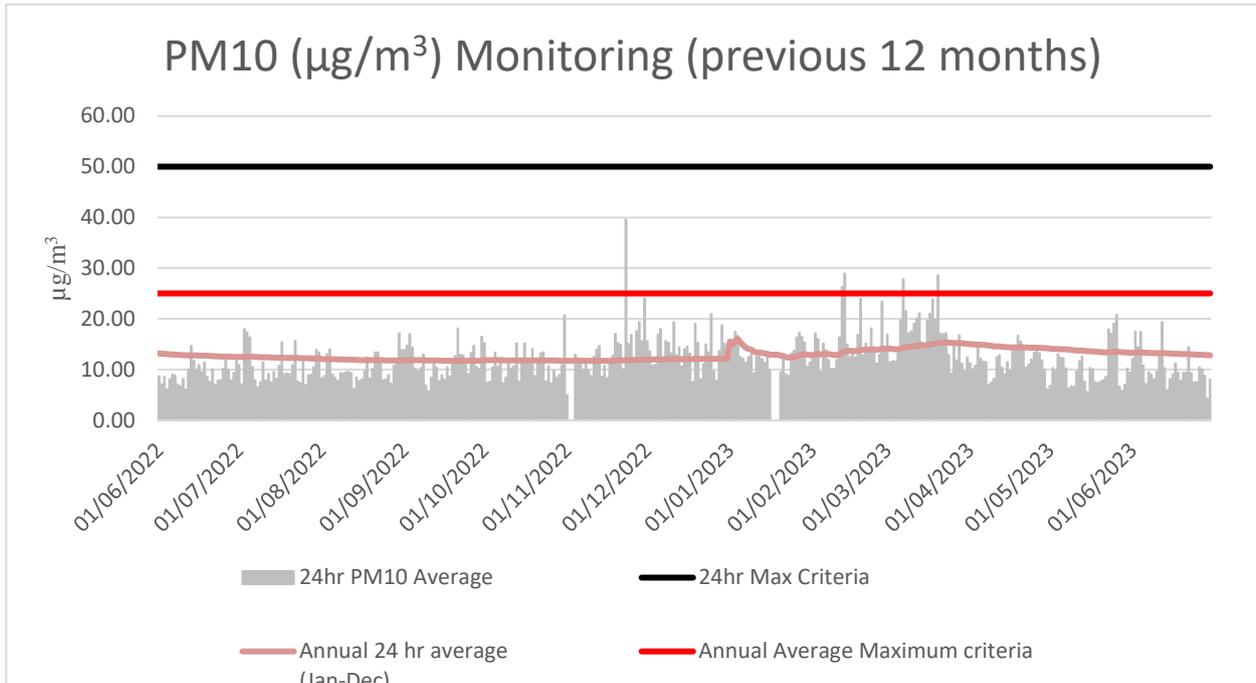
A 12-month rolling average of depositional dust concentrations has been presented below. Dust Gauges DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery and DDG006 is positioned in a location representative of the Chain Valley Colliery ventilation fan site 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 June 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 **100%** for the month of June 2023.

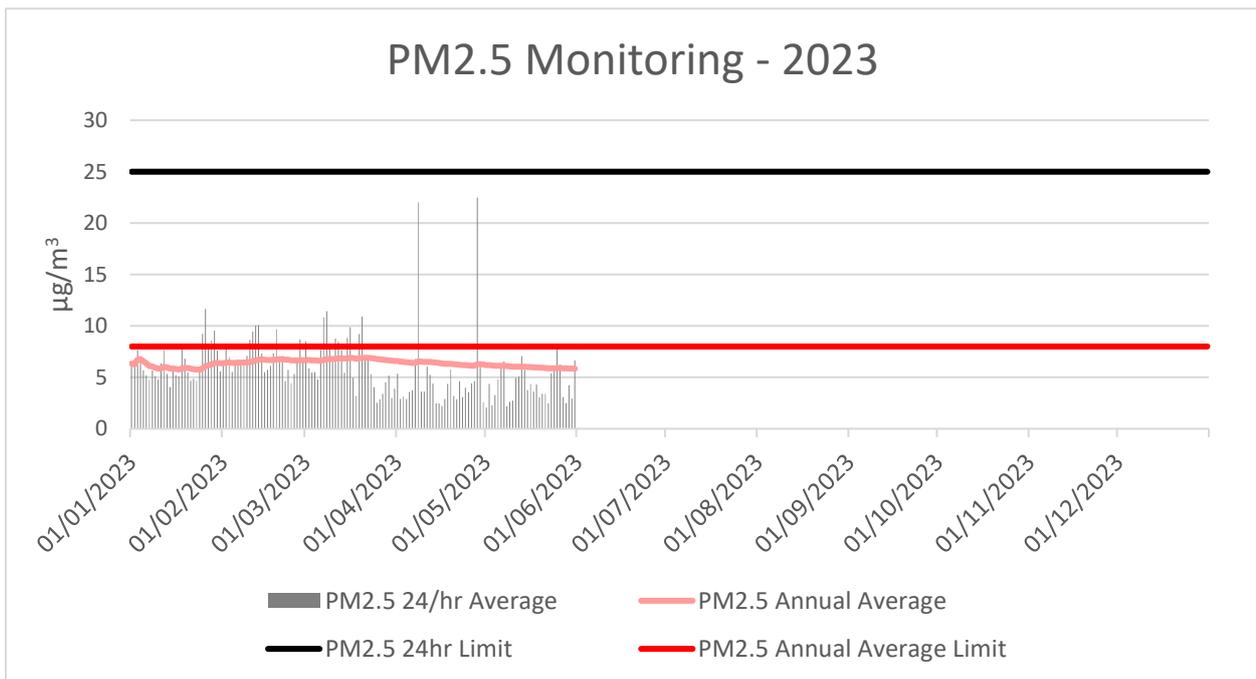
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Variable	June	Total	Valid
A/C Temp	99.8%	8640	8626
A1	99.8%	8640	8626
A1_Scaled	99.8%	8640	8626
Bypass Flow	99.8%	8640	8626
Cap Temp	99.8%	8640	8626
Case Temp	99.8%	8640	8626
Config	99.8%	8640	8626
Dew Point	99.8%	8640	8626
Dig-In	99.8%	8640	8626
Dig-Latch	99.8%	8640	8626
ESN	99.8%	8640	8626
Filter Freq	99.8%	8640	8626
Filter Load	99.8%	8640	8626
Humidity	99.8%	8640	8626
MC	99.8%	8640	8626
MC 12Hr	99.8%	8640	8626
MC 1Hr	99.8%	8640	8626
MC 24Hr	99.8%	8640	8626
MC 30min	99.8%	8640	8626
MC 8Hr	99.8%	8640	8626
MC Total	99.8%	8640	8626
Mobile Signal	99.8%	8640	8626
Noise	99.8%	8640	8626
PM10 Flow	99.8%	8640	8626
Pressure	99.8%	8640	8626
Site	0.0%	8640	0
Temperature	99.8%	8640	8626
Tube Temp	99.8%	8640	8626
Vac Pressure	99.8%	8640	8626
Volts	99.8%	8640	8626

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.



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There were no exceedances of the PM_{2.5} daily average limit in May 2023. The 12-month rolling average PM_{2.5} value on 31 May 2023 was 5.84 µg/m³. PM_{2.5} data availability in May 2023 was 99%. The 2023 year to date PM_{2.5} data availability is 98.9%.

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	10 July 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

Variable	June	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