



Chain Valley Colliery Monthly Website Report – April 2023

Site:	Chain Valley Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Website Report – April 2023
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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;
- Conditions 8 & 11, Schedule 6, of 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 April 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 March 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 – 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 **April 2023**

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

Development Consent SSD-5465 (as modified)

Environment Protection Licence (EPL) 1770 (Licence version date: 1 March 2023)

Monitoring Results

Water – Quality

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

April 2023			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	19-04-2023		
Date Obtained	26-04-2023		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	38
Faecal Coliforms	CFU/100mL	200	200
pH	pH	6.5-8.5	7.78
Total Sus. Solids (TSS)	mg/L	50	<5
Electrical Conductivity	µS/cm	-	28,400

There were no water quality exceedances at CVC's licensed discharge points for monitoring undertaken in April 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 April 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)
01/04/2023	5137.82	2.2
02/04/2023	5588.49	4.6
03/04/2023	9782.87	8
04/04/2023	6876.88	4.4
05/04/2023	7473.32	5
06/04/2023	5792.43	0.2
07/04/2023	6079.95	2
08/04/2023	8970.95	0
09/04/2023	5637.31	0
10/04/2023	7320.63	0
11/04/2023	6489.03	0
12/04/2023	4630.34	1.8
13/04/2023	4876.25	13.2
14/04/2023	5917.94	13.2
15/04/2023	9639.89	0.2
16/04/2023	5111.59	0
17/04/2023	2036.19	0
18/04/2023	2742	0
19/04/2023	6394.24	0.2
20/04/2023	6802.06	30.4
21/04/2023	7013.39	0
22/04/2023	5983.37	2.8
23/04/2023	6104.35	0.8
24/04/2023	6553.61	1.4
25/04/2023	6954.72	0.2
26/04/2023	5547.78	0.2
27/04/2023	5906.24	0
28/04/2023	7365.28	0
29/04/2023	5352.07	4
30/04/2023	7431.14	1.2
Average	6250	3.2
Minimum	2036.19	0
Maximum	9782.87	30.4

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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		
June 2023		

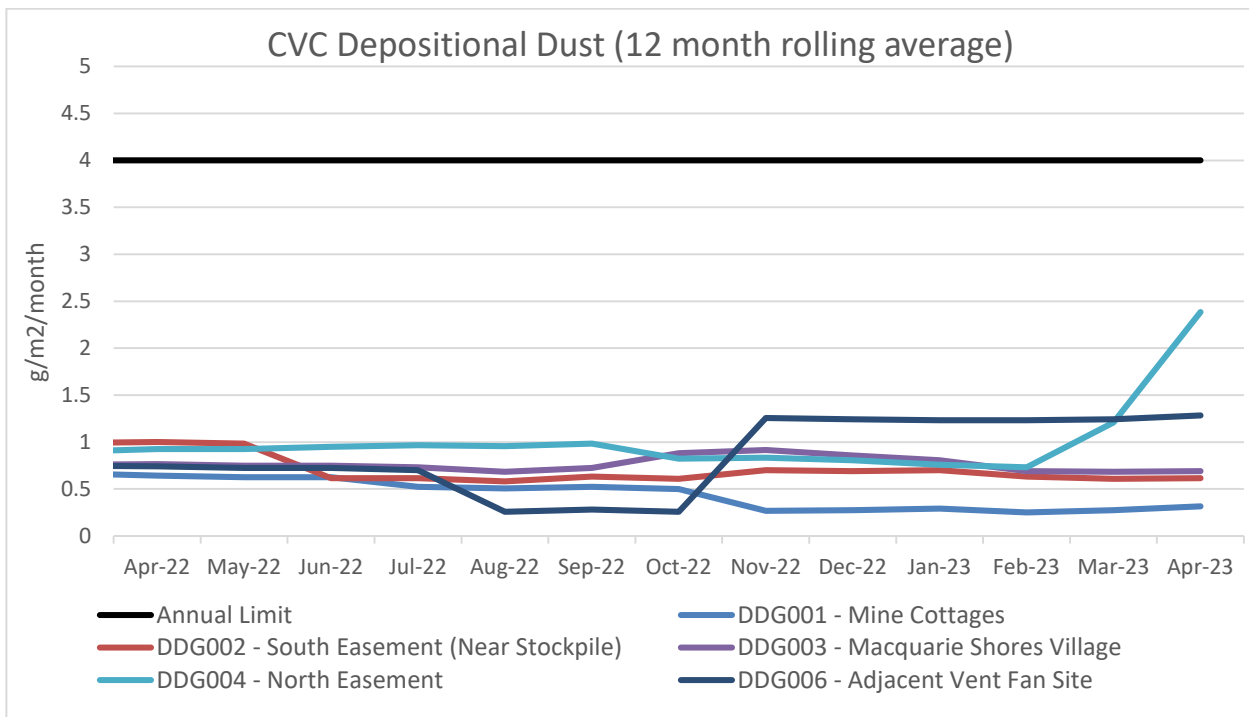
Air Quality - Depositional Dust

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.

April 2023	
EPL	1770
Limit	4g/m ² /month / Annum 2g/m ² /month increase from previous result
Sampling Date	03/03/2023 – 03/04/2023
Site	Insoluble Matter (g/m ² /month)
DDG001	0.4
DDG002	0.8
DDG003	0.9
DDG004	15
DDG006	0.8
Notes: For site locations refer to the Delta Coal Air Quality and Greenhouse Gas Management Plan. Dust gauge contamination observed in DDG004.	

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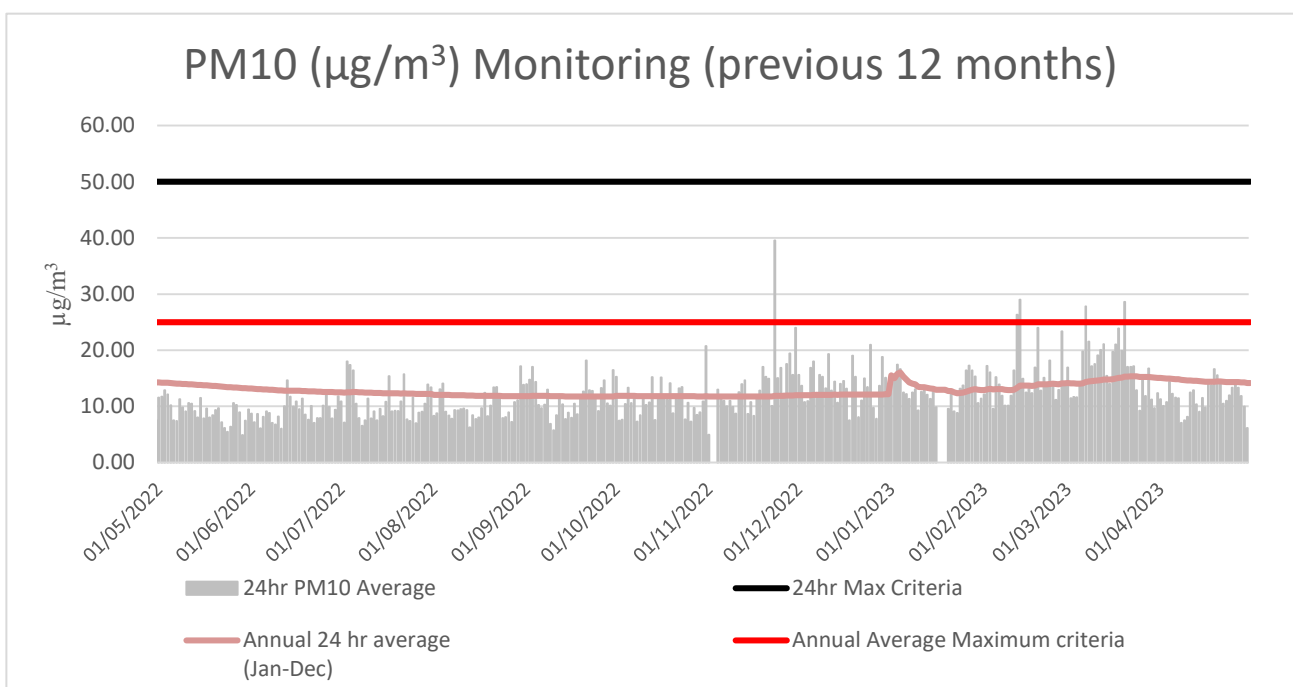
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A 12-month rolling average of depositional dust concentrations has been presented below. Dust Gauges DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery and DDG006 is positioned in a location representative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

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.



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Annual 24hr PM₁₀ average maximum criteria for April 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 April 2023.

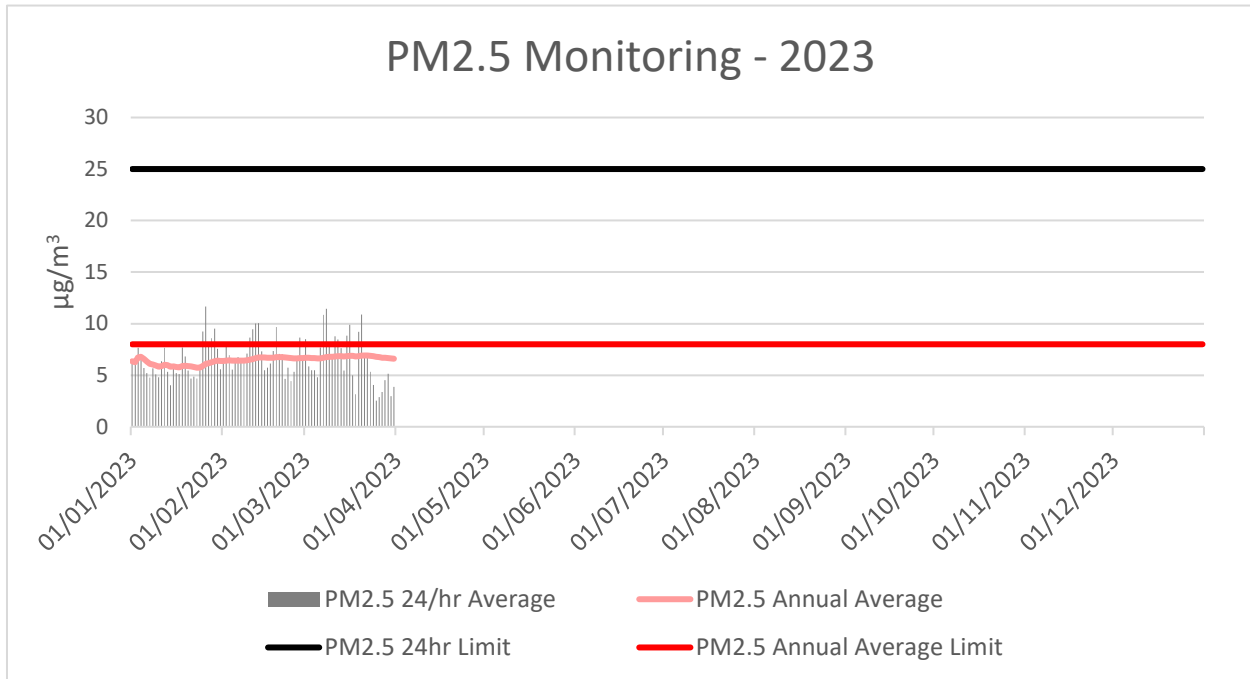
Variable	April	Total	Valid
A/C Temp	100%	8640	8640
A1	100%	8640	8640
A1_Scaled	100%	8640	8640
Bypass Flow	100%	8640	8640
Cap Temp	100%	8640	8640
Case Temp	100%	8640	8640
Config	100%	8640	8640
Dew Point	100%	8640	8640
Dig-In	100%	8640	8640
Dig-Latch	100%	8640	8640
ESN	100%	8640	8640
Filter Freq	100%	8640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

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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 March 2023. The 12-month rolling average PM_{2.5} value on 31 March 2023 was 6.59 $\mu\text{g}/\text{m}^3$. PM_{2.5} data availability in March 2023 was 97%. The 2023 year to date PM_{2.5} data availability is 98.43%. It is noted that due to the 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	11 May 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

Variable	April	Total	Valid
Baro (Corrected)	99.9%	2880	2877
10m Temp	99.9%	2880	2877
2m Temp	99.9%	2880	2877
A1	99.9%	2880	2877
A1_Scaled	99.9%	2880	2877
Assumed Temp	99.9%	2880	2877
Barometric	99.9%	2880	2877
Config	99.9%	2880	2877
Daily Evap	99.9%	2880	2877
Daily Rain	99.9%	2880	2877
Delta T	99.9%	2880	2877
Dew Point	99.9%	2880	2877
Dig-In	99.9%	2880	2877
Dig-Latch	99.9%	2880	2877
ESN	99.9%	2880	2877
FDI	99.9%	2880	2877
Heat Index	99.9%	2880	2877
Humidity	99.9%	2880	2877
Mobile Signal	99.9%	2880	2877
Rain	99.9%	2880	2877
Raw Evap	99.9%	2880	2877
S Class	99.9%	2880	2877
Scalar WS	99.9%	2880	2877
Sigma	99.9%	2880	2877
Site	0.0%	2880	0
Solar Radiation	99.9%	2880	2877
Vector WD	99.9%	2880	2877
Vector WS	99.9%	2880	2877
Volts	99.9%	2880	2877
Wind Chill	99.9%	2880	2877
Wind Direction	99.9%	2880	2877
Wind Speed	99.9%	2880	2877
WS Avg	99.9%	2880	2877
WS Gust	99.9%	2880	2877