



Chain Valley Colliery Monthly Website Report – October 2022

Site:	Chain Valley Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Website Report – October 2022
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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 October 2022.

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 10 August 2022

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 2022**

ALS Group - Dust Deposition Report **October 2022**

Development Consent SSD-5465 (as modified)

Environment Protection Licence (EPL) 1770 (Licence version date: 10 August 2022)

Monitoring Results

Water – Quality

Water quality results for October 2022 monthly surface water sampling at Chain Valley Colliery, Licensed Discharge Point (LDP 1) are presented below.

October 2022			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	19-10-2022		
Date Obtained	25-10-2022		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	55
Faecal Coliforms	CFU/100mL	200	42
pH	pH	6.5-8.5	7.57
Total Sus. Solids (TSS)	mg/L	50	<5
Electrical Conductivity	µS/cm	-	30,100

There was one exceedance of water quality limits at Chain Valley Colliery for the reporting period, following a high-intensity rainfall event on the 8th October 2022, flow was recorded at Point 27 (CVC Spillway) and a sample was collected as required under EPL 1770. The sample recorded an exceedance of Faecal Coliform and Total Suspended Solids limits, with results of 420 CFU/100ml and 56 mg/L respectively. The non-compliance was investigated and reported to the NSW EPA, Department of Planning and Environment and NSW Resources Regulator.

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Water – Volume

Monthly water volumes discharged from the site are summarised below. There were no exceedance of volumetric discharge recorded at CVC for the period of October 2022.

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)
01/10/2022	8132.04	0.2
02/10/2022	8368.86	5
03/10/2022	6386.98	0.2
04/10/2022	8232.21	0
05/10/2022	7190.7	9.6
06/10/2022	7156.75	4.6
07/10/2022	5387.79	11.6
08/10/2022	10611.37	52.2
09/10/2022	8940.56	8.4
10/10/2022	8445.05	1.4
11/10/2022	6810.31	0.2
12/10/2022	4322.71	0
13/10/2022	3921.52	0
14/10/2022	6993.09	0.6
15/10/2022	6782.78	0
16/10/2022	6525.18	4.4
17/10/2022	7004.32	11.8
18/10/2022	7704.61	7.4
19/10/2022	7020.81	0.8
20/10/2022	8103.05	13
21/10/2022	6787.36	0.4
22/10/2022	5190.45	0.6
23/10/2022	8341.31	5.8
24/10/2022	7319.19	5.2
25/10/2022	8398.26	4.8
26/10/2022	7949.8	0.2
27/10/2022	6365.76	1.2
28/10/2022	6254.42	0
29/10/2022	8415.01	0
30/10/2022	7187.6	0
31/10/2022	8571.31	0
Average	7252	4.8
Minimum	3921	0
Maximum	10611	52.2

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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		
December 2022		
January 2023		
February 2023		
March 2023		
April 2023		
May 2023		
June 2023		

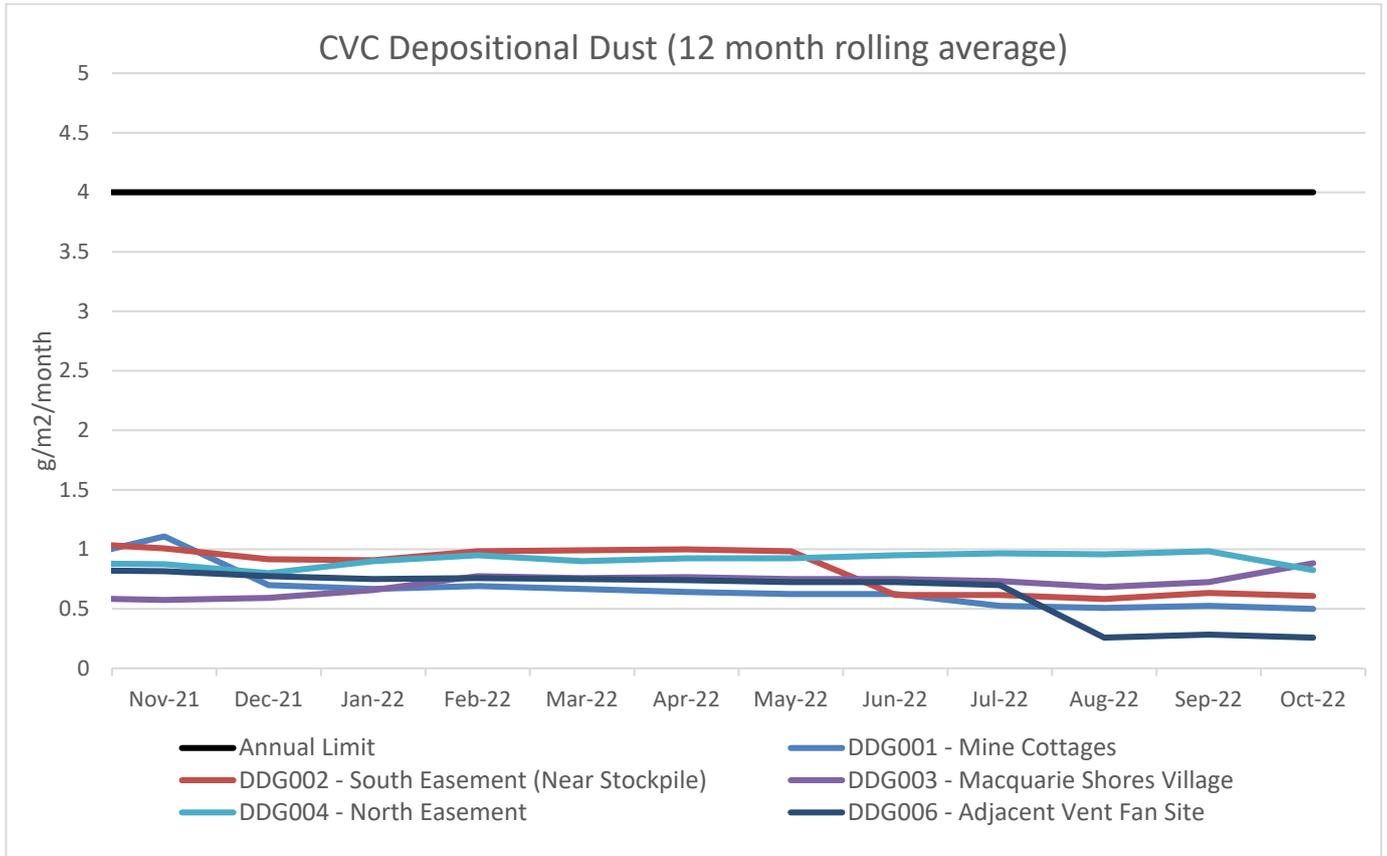
Air Quality - Depositional Dust

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.

October 2022	
EPL	1770
Limit	4g/m ² /month / Annum 2g/m ² /month increase from previous result
Sampling Date	02/09/2022 – 04/10/2022
Site	Insoluble Matter (g/m²/month)
DDG001	0.3
DDG002	0.7
DDG003	2.4*
DDG004	0.8
DDG006	0.1
Notes: For site locations refer to Chain Valley Colliery Air Quality Management Plan. *Prior month at DDG003 result of 1 g/m ² /month	

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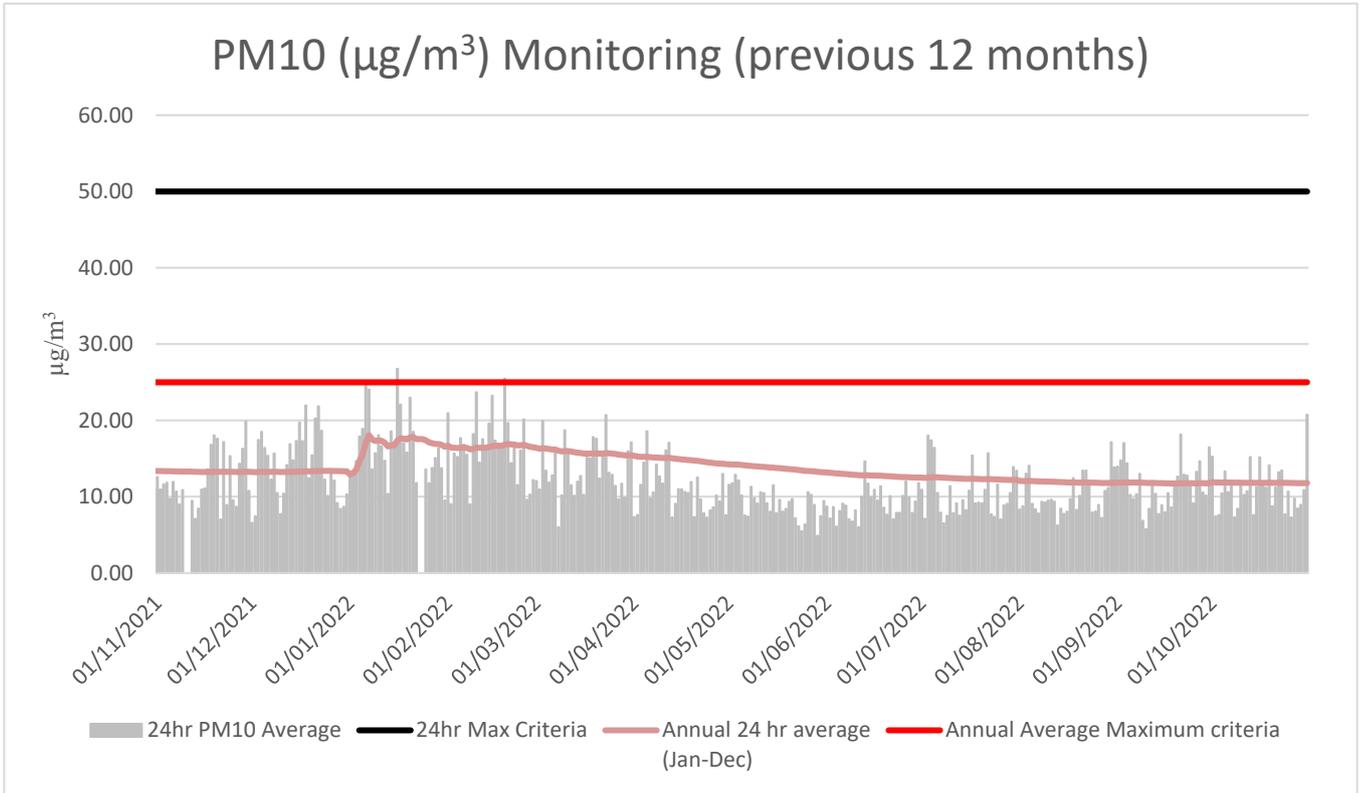
A 12 month rolling average of depositional dust concentrations has been presented below. Dust Gauges DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery and DDG006 is positioned in a location representative of the Chain Valley Colliery ventilation fan site 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 2022 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 **99.9%** for the month of October 2022. The 0.1% of data lost was due to calibration of the TEOM unit in the month.

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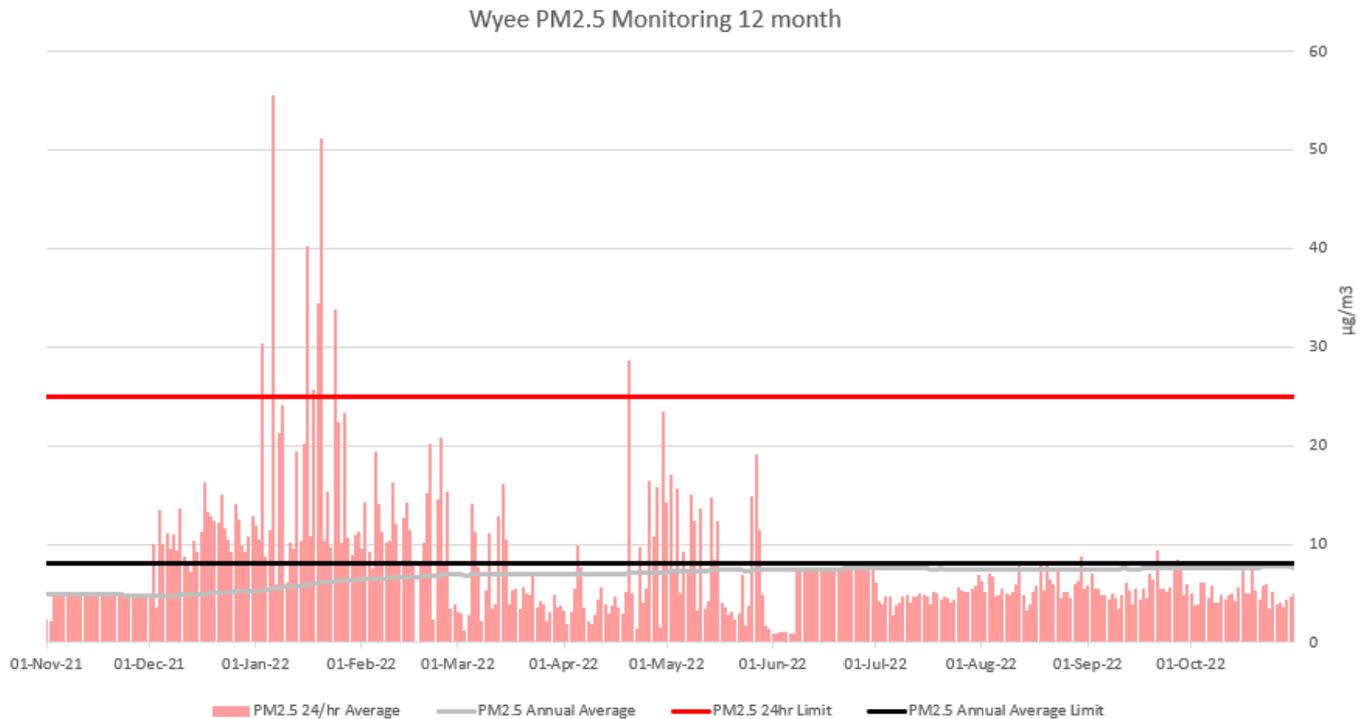
Variable	October	Total	Valid
A/C Temp	99.9%	8928	8917
A1	99.9%	8928	8917
A1_Scaled	99.9%	8928	8917
Bypass Flow	99.9%	8928	8917
Cap Temp	99.9%	8928	8917
Case Temp	99.9%	8928	8917
Config	99.9%	8928	8917
Dew Point	99.9%	8928	8917
Dig-In	99.9%	8928	8917
Dig-Latch	43.5%	8928	3884
ESN	99.9%	8928	8917
Filter Freq	99.9%	8928	8917
Filter Load	99.9%	8928	8917
Humidity	99.9%	8928	8917
MC	99.9%	8928	8917
MC 12Hr	99.9%	8928	8917
MC 1Hr	99.9%	8928	8917
MC 24Hr	99.9%	8928	8917
MC 30min	99.9%	8928	8917
MC 8Hr	99.9%	8928	8917
MC Total	99.9%	8928	8917
Mobile Signal	99.9%	8928	8917
Noise	99.9%	8928	8917
PM10 Flow	99.9%	8928	8917
Pressure	99.9%	8928	8917
Site	0.0%	8928	0
Temperature	99.9%	8928	8917
Tube Temp	99.9%	8928	8917
Vac Pressure	99.9%	8928	8917
Volts	99.9%	8928	8917

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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 September 2022. The 12-month rolling average PM_{2.5} value on 31 October 2022 was 7.64 µg/m³. PM_{2.5} data availability for October 2022 was 99%. The 2022 year to date PM_{2.5} data availability was 98%.

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 2022			
Licensee	Great Southern Energy Pty Ltd		
Location	Mannering Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	12 October 2022		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-22	110.6	15.4	30.5
Feb-22	187.2	14.1	34
Mar-22	398.4	13.1	29
Apr-22	174.4	9.8	28.3
May-22	132.4	5.3	26.1
Jun-22	24.8	3	21.5
Jul-22	356.8	2.8	21.4
Aug-22	44	3.9	23.6
Sep-22	120	6	23.6
Oct-22	163.4	6.8	29.2

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Variable	October	Total	Valid
Baro (Corrected)	99.9%	2976	2973
10m Temp	99.9%	2976	2973
2m Temp	99.9%	2976	2973
A1	99.9%	2976	2973
A1_Scaled	99.9%	2976	2973
Assumed Temp	99.9%	2976	2973
Barometric	99.9%	2976	2973
Config	99.9%	2976	2973
Daily Evap	99.9%	2976	2973
Daily Rain	99.9%	2976	2973
Delta T	99.9%	2976	2973
Dew Point	99.9%	2976	2973
Dig-In	99.9%	2976	2973
Dig-Latch	43.5%	2976	1294
ESN	99.9%	2976	2973
FDI	99.9%	2976	2973
Heat Index	99.9%	2976	2973
Humidity	99.9%	2976	2973
Mobile Signal	99.9%	2976	2973
Rain	99.9%	2976	2973
Raw Evap	99.9%	2976	2973
S Class	99.9%	2976	2973
Scalar WS	99.9%	2976	2973
Sigma	99.9%	2976	2973
Site	0.0%	2976	0
Solar Radiation	99.9%	2976	2973
Vector WD	99.9%	2976	2973
Vector WS	99.9%	2976	2973
Volts	99.9%	2976	2973
Wind Chill	99.9%	2976	2973
Wind Direction	99.9%	2976	2973
Wind Speed	99.9%	2976	2973
WS Avg	99.9%	2976	2973
WS Gust	99.9%	2976	2973