



Chain Valley Colliery Monthly Website Report – March 2022

Site:	Chain Valley Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Website Report – March 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) publically 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 March 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	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50980&SYSUID=1&LICID=1770

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 **March 2022**

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

Development Consent SSD-5465 (as modified)

Environment Protection Licence (EPL) 1770 (Licence version date: 24 February 2022)

Monitoring Results

Water – Quality

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

March 2022			
EPL	1770		
Licensee	Great Southern Energy Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	16-02-2022		
Date Obtained	18-02-2022		
Sampling Point	LDP1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococcus	col/100mL	-	1500
Faecal Coliforms	CFU/100mL	200	20
pH	pH	6.5-8.5	7.52
Total Sus. Solids (TSS)	mg/L	50	<5
Electrical Conductivity	µS/cm	-	32,000
Oil and Grease			<5

While water quality results at the Chain Valley Colliery licensed discharge point were within compliance limits for the routine monthly sampling in March 2022, LDP27 (CVC final dam spillway) flowed on 2 March 2022 and 30 March 2022. In accordance with EPL1770 the spillway was sampled daily during discharge. Water Quality results for the spillway discharge are below and the exceedance of the faecal coliform limit on 30 March 2022 was reported to the NSW EPA, Department of Planning, Industry and Environment (DPIE) and the Resources Regulator.

Sample	Date and Time	pH (pH Units)	TSS (mg/L)	Electrical Conductivity (µs/cm)	Faecal Coliform (CFU/100ml)	Enterococcus (CFU/100ml)
EPL 1770 Limit		6.5 – 8.5	50	-	200	-
LDP 27	02/03/22 12:30pm	7.71	33	8,140	40	740
LDP 27	30/03/22 18:50pm	7.75	32	20,300	1,200	630

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Water – Volume

Monthly water volumes discharged from the site are summarised below.

The daily water volumes at EPA Discharge Point 1 (LDP1) during March 2022 did not exceed the EPL 1770 discharge limit.

EPL	1770
Licensee	Great Soutehrn 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)	Unit	LDP 1 Volume
01/03/2022	kL	4915.72
02/03/2022	kL	7176.83
03/03/2022	kL	3920.28
04/03/2022	kL	4318.28
05/03/2022	kL	3087.79
06/03/2022	kL	4458.69
07/03/2022	kL	3602.52
08/03/2022	kL	6425.8
09/03/2022	kL	3720.56
10/03/2022	kL	4493.4
11/03/2022	kL	6530.08
12/03/2022	kL	9021.3
13/03/2022	kL	5175.02
14/03/2022	kL	7850.19
15/03/2022	kL	8693.49
16/03/2022	kL	8632.32
17/03/2022	kL	6791.35
18/03/2022	kL	8966.36
19/03/2022	kL	9168.43
20/03/2022	kL	8087.84
21/03/2022	kL	8206.44
22/03/2022	kL	7604.54
23/03/2022	kL	8194.44
24/03/2022	kL	8188.32
25/03/2022	kL	6035.28
26/03/2022	kL	9231.85
27/03/2022	kL	6890.15
28/03/2022	kL	6609.1
29/03/2022	kL	8478.89
30/03/2022	kL	10598.37
31/03/2022	kL	7158.02

Average	kL	6846
Minimum	kL	3088
Maximum	kL	10598

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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 calander) with a roll-over entitlement up to a maximum of 8,886 megalitres.

CVC Groundwater to Surface Totals FY2021-2022		
Date (month)	GW Discharge (ML/Month)	GW Discharge (Cumulative ML YTD)
July 2021	189.98	189.98
August 2021	164.83	354.82
September 2021	135.72	490.54
October 2021	187.79	678.33
November 2021	173.63	851.96
December 2021	157.59	1,009.55
January 2022	159.53	1,169.08
February 2022	178.73	1,347.81
March 2022	178.10	1,525.91
April 2022		
May 2022		
June 2022		

Air Quality - Depositional Dust

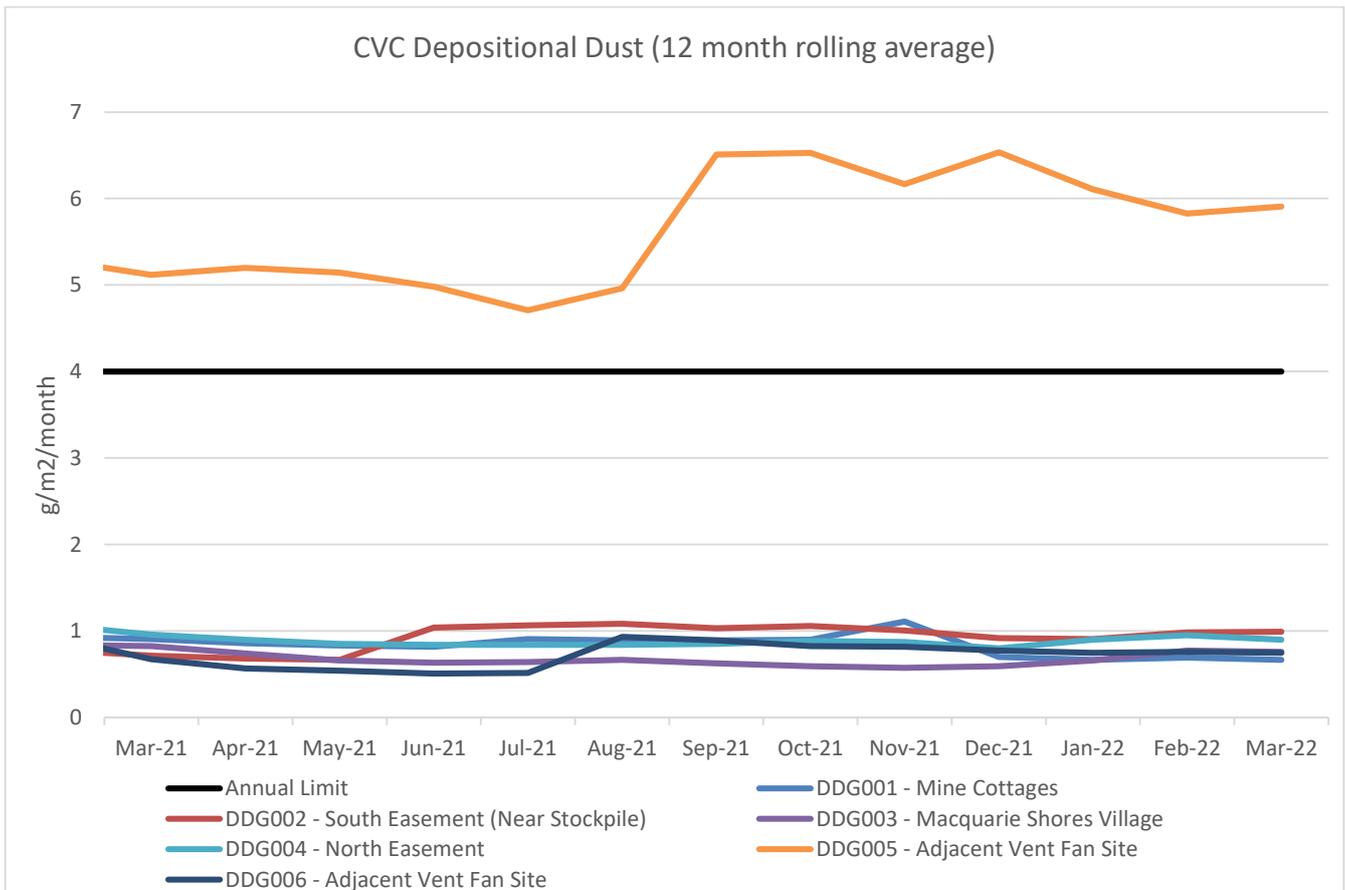
Monthly depositional dust results are shown below. Dust deposition gauges were sampled and analysed in accordance with the development consent, CVC Air Quality Management Plan and relevant Australian Standards.

March 2022	
EPL	1770
Limit	4g/m ² /month / Annum
Sampling Date	07/02/2022 to 10/03/2022
Site	Insoluble Matter (g/m ² /month)
DDG001	0.1
DDG002	0.7
DDG003	0.4
DDG004	0.5
DDG005	1.2
DDG006 (proposed DDG005 Replacement)	0.3
Notes: For site locations refer to Chain Valley Colliery Air Quality Management Plan.	

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A 12 month rolling average of depositional dust concentrations has been presented below. Dust Guages DDG001, DDG002, DDG003 and DDG004 are located within a closer proximity to Chain Valley Colliery. DDG005 was intended to represent the CVC ventilation fan site, however has been frequently contaminated by factors outside of mine operations (bird droppings, insects, land maintenance activities and vegetation). Subsequently, DDG006 was installed in a location considered more representative of the CVC vent fan site. On the 25th March 2022 DPIE approved a combined Air Quality and Greenhouse Gas Management Plan for Chain Valley Colliery and Mannering Colliery, the approval permitted monitoring of DDG005 to cease in replacement for DDG006.

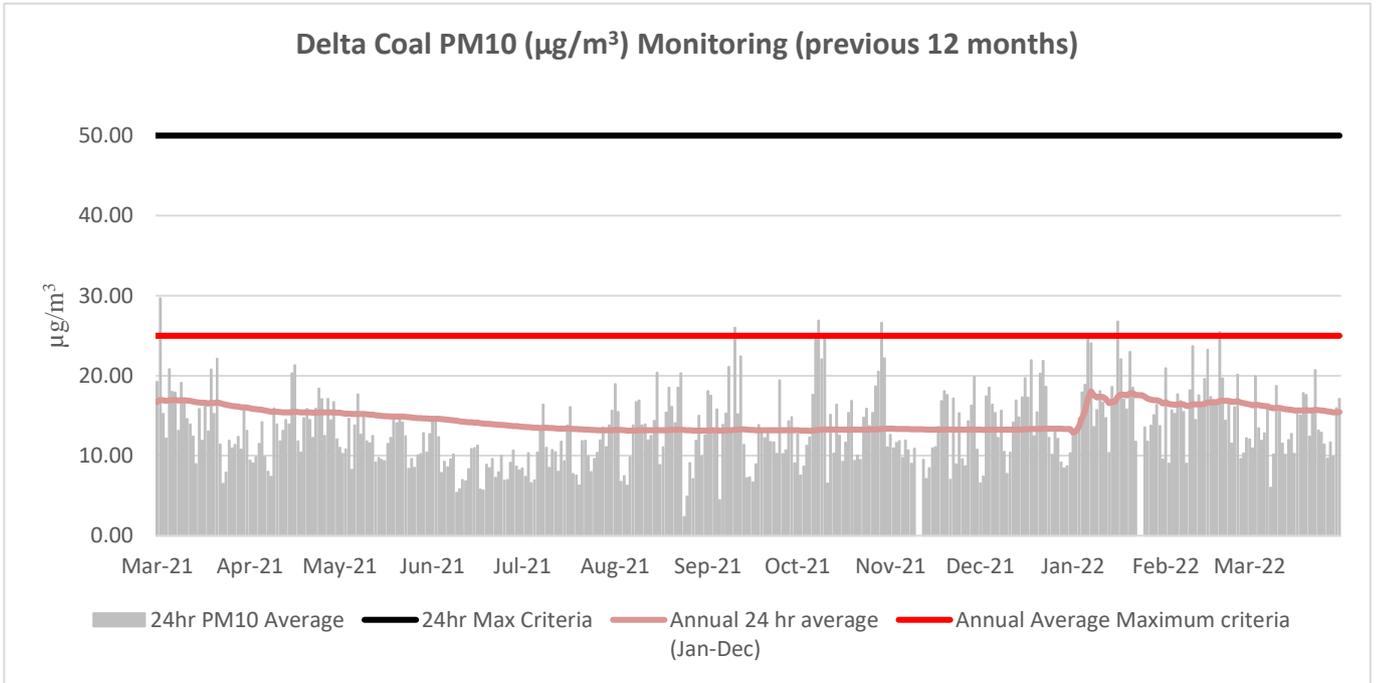


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Air Quality – PM₁₀

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 year to date.



Annual 24hr PM₁₀ average maximum criteria for February 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 **100%** for the month of March 2022.

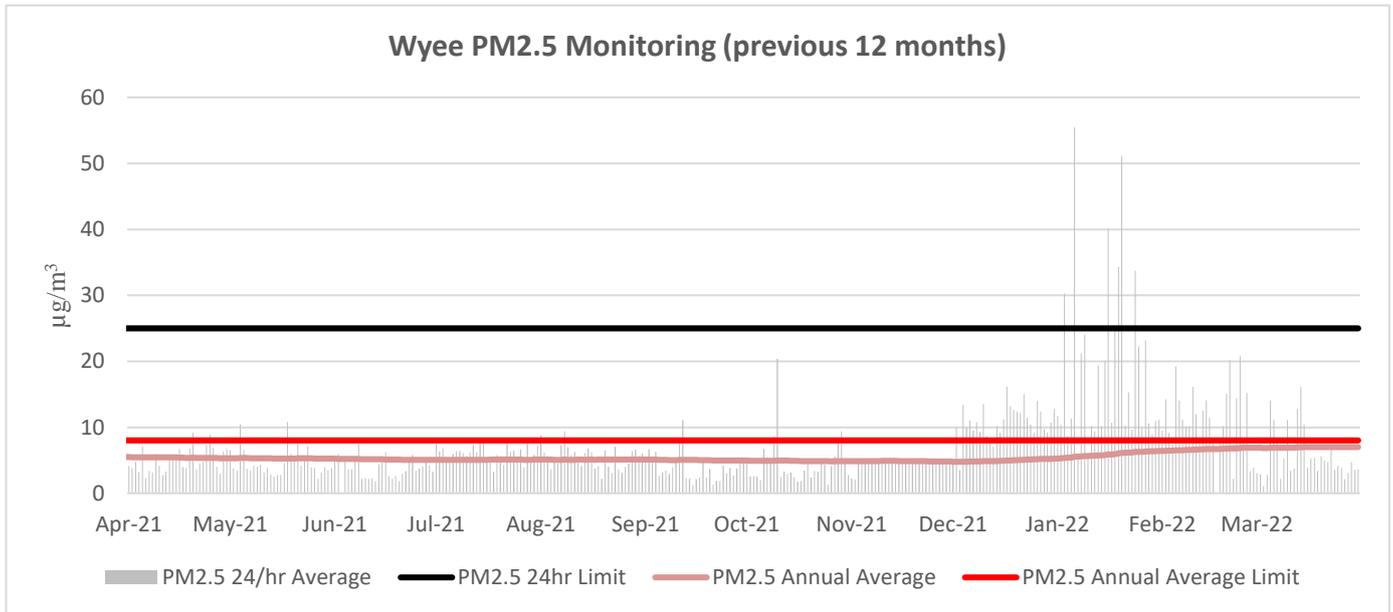
Variable	March	Total	Valid
A/C Temp	100%	8928	8927
A1	100%	8928	8927
A1_Scaled	100%	8928	8927
Bypass Flow	100%	8928	8927
Cap Temp	100%	8928	8927
Case Temp	100%	8928	8927
Config	100%	8928	8927
Dew Point	100%	8928	8927
Dig-In	100%	8928	8927
Dig-Latch	100%	8928	8927
ESN	100%	8928	8927
Filter Freq	100%	8928	8927
Filter Load	100%	8928	8927
Humidity	100%	8928	8927
MC	100%	8928	8927
MC 12Hr	100%	8928	8927
MC 1Hr	100%	8928	8927
MC 24Hr	100%	8928	8927
MC 30min	100%	8928	8927
MC 8Hr	100%	8928	8927
MC Total	100%	8928	8927
Mobile Signal	100%	8928	8927
Noise	100%	8928	8927
PM10 Flow	100%	8928	8927
Pressure	100%	8928	8927
Site	0.0%	8928	0
Temperature	100%	8928	8927
Tube Temp	100%	8928	8927
Vac Pressure	100%	8928	8927
Volts	100%	8928	8927

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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 March 2022. The 12 month rolling average PM_{2.5} value on 31 March 2022 was 7.0 µm/m³. PM_{2.5} data availability for March 2022 was 99.9% and 2022 year to date PM_{2.5} data availability was 99.8%.

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	13 March 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

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Variable	March	Total	Valid
Baro (Corrected)	99.9%	2976	2972
10m Temp	99.9%	2976	2972
2m Temp	99.9%	2976	2972
A1	99.9%	2976	2972
A1_Scaled	99.9%	2976	2972
Assumed Temp	99.9%	2976	2972
Barometric	99.9%	2976	2972
Config	99.9%	2976	2972
Daily Evap	99.9%	2976	2972
Daily Rain	99.9%	2976	2972
Delta T	99.9%	2976	2972
Dew Point	99.9%	2976	2972
Dig-In	99.9%	2976	2972
Dig-Latch	99.9%	2976	2972
ESN	99.9%	2976	2972
FDI	99.9%	2976	2972
Heat Index	99.9%	2976	2972
Humidity	99.9%	2976	2972
Mobile Signal	99.9%	2976	2972
Rain	99.9%	2976	2972
Raw Evap	99.9%	2976	2972
S Class	99.9%	2976	2972
Scalar WS	99.9%	2976	2972
Sigma	99.9%	2976	2972
Site	0.0%	2976	0
Solar Radiation	99.9%	2976	2972
Vector WD	99.9%	2976	2972
Vector WS	99.9%	2976	2972
Volts	99.9%	2976	2972
Wind Chill	99.9%	2976	2972
Wind Direction	99.9%	2976	2972
Wind Speed	99.9%	2976	2972
WS Avg	99.9%	2976	2972
WS Gust	99.9%	2976	2972