



Chain Valley Colliery Monthly Website Report – December 2023

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| Site: | Chain Valley Colliery |
| Department: | Technical Services |
| Report Title: | Monthly Environmental Website Report – December 2023 |
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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of December 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 December 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 – October 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 **December 2023**

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

| December 2023 | | | |
|-------------------------|-------------------------------|---------|--------|
| EPL | 1770 | | |
| Licensee | Great Southern Energy Pty Ltd | | |
| Premises | Chain Valley Colliery | | |
| Date Sampled | 5-12-2023 | | |
| Date Obtained | 15-12-2023 | | |
| Sampling Point | LDP 1 | | |
| Parameter | Units | Limit | Result |
| Biochem. Oxygen Demand | mg/L | - | <2 |
| Enterococcus | col/100mL | - | 34 |
| Faecal Coliforms | CFU/100mL | 200 | 16 |
| pH | pH | 6.5-8.5 | 7.72 |
| Total Sus. Solids (TSS) | mg/L | 50 | 9 |
| Electrical Conductivity | µS/cm | - | 30800 |

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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 December 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) |
|------------------------------|--------------------------|----------------------|
| 01/12/2023 | 4402 | 0 |
| 02/12/2023 | 6263 | 3.8 |
| 03/12/2023 | 6627 | 0 |
| 04/12/2023 | 6604 | 0 |
| 05/12/2023 | 4712 | 0 |
| 06/12/2023 | 5949 | 0 |
| 07/12/2023 | 5856 | 0 |
| 08/12/2023 | 5343 | 0 |
| 09/12/2023 | 7025 | 0 |
| 10/12/2023 | 5005 | 3 |
| 11/12/2023 | 6051 | 0 |
| 12/12/2023 | 5015 | 0 |
| 13/12/2023 | 4564 | 0 |
| 14/12/2023 | 5461 | 0 |
| 15/12/2023 | 4758 | 0 |
| 16/12/2023 | 6058 | 0 |
| 17/12/2023 | 6207 | 0 |
| 18/12/2023 | 6258 | 0 |
| 19/12/2023 | 7581 | 4.2 |
| 20/12/2023 | 8702 | 30 |
| 21/12/2023 | 6846 | 4.4 |
| 22/12/2023 | 5688 | 0 |
| 23/12/2023 | 6753 | 0 |
| 24/12/2023 | 7789 | 12.4 |
| 25/12/2023 | 6712 | 1.2 |
| 26/12/2023 | 5850 | 1.8 |
| 27/12/2023 | 6823 | 2.4 |
| 28/12/2023 | 6389 | 0.2 |
| 29/12/2023 | 6120 | 0 |
| 30/12/2023 | 7290 | 2 |
| 31/12/2023 | 6406 | 2.2 |

| | | |
|---------|------|----|
| Average | 6165 | 2 |
| Minimum | 4402 | 0 |
| Maximum | 8702 | 30 |

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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 FY2023-2024 | | |
|--|-------------------------|----------------------------------|
| Date (month) | GW Discharge (ML/Month) | GW Discharge (Cumulative ML YTD) |
| July 2023 | 200 | 200 |
| August 2023 | 212 | 412 |
| September 2023 | 197 | 610 |
| October 2023 | 205 | 815 |
| November 2023 | 197 | 1013 |
| December 2023 | 207 | 1220 |
| January 2024 | | |
| February 2024 | | |
| March 2024 | | |
| April 2024 | | |
| May 2024 | | |
| June 2024 | | |

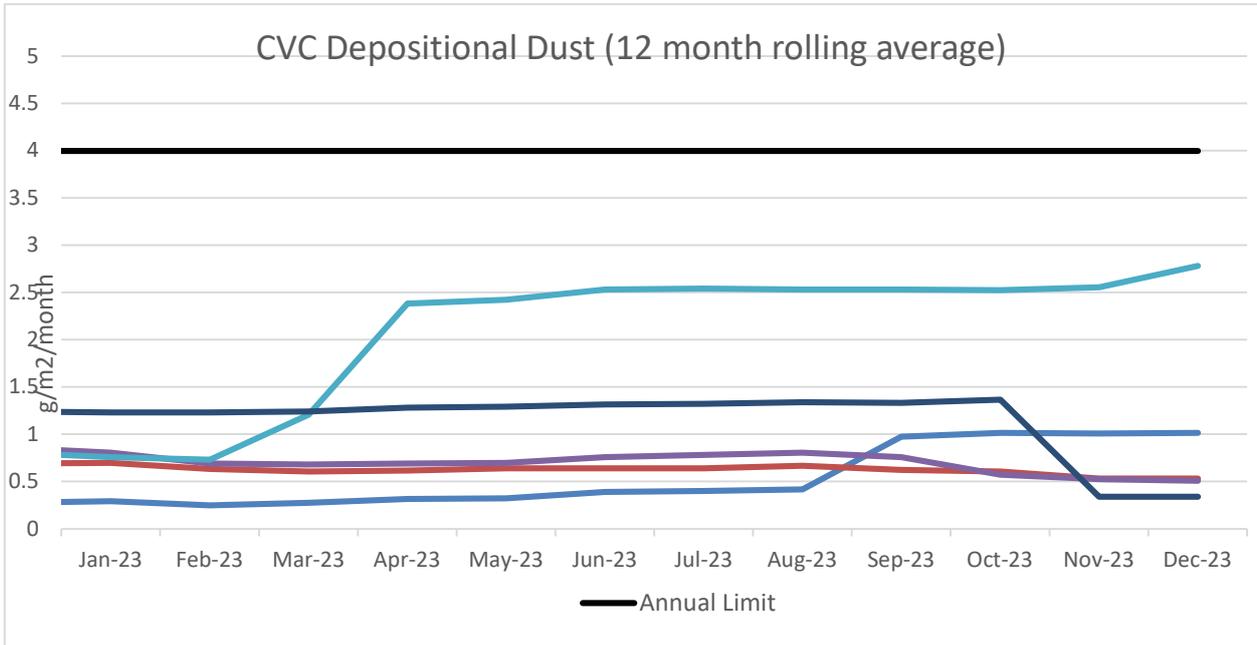
Air Quality - Depositional Dust

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.

| December 2023 | |
|---|--|
| EPL | 1770 |
| Limit | 4g/m ² /month / Annum 2g/m ² /month increase from previous result |
| Sampling Date | 01/11/2023 - 01/12/2023 |
| Site | Insoluble Matter (g/m²/month) |
| DDG001 | 0.5 |
| DDG002 | 0.5 |
| DDG003 | 0.7 |
| DDG004 | 3.5 |
| DDG006 | 0.2 |
| 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.

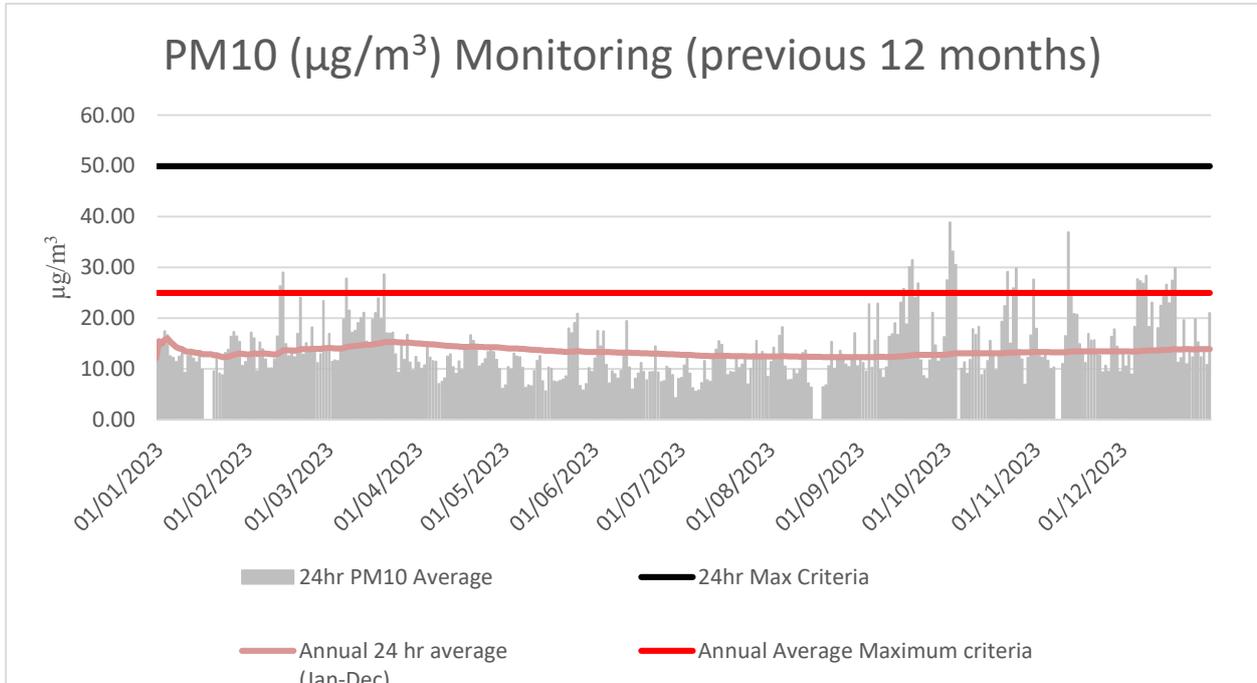
There was an exceedance to the maximum total increase in deposited dust level (increase greater than 2 g/m²/month) at DDG004 for the sampling period. The monthly depositional dust level increased from 1.2 g/m²/month to 3.5 g/m²/month. The 12-month rolling average result remains below the annual limit of 4g/m² /month.

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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 December 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 97.4% for the month of December 2023.

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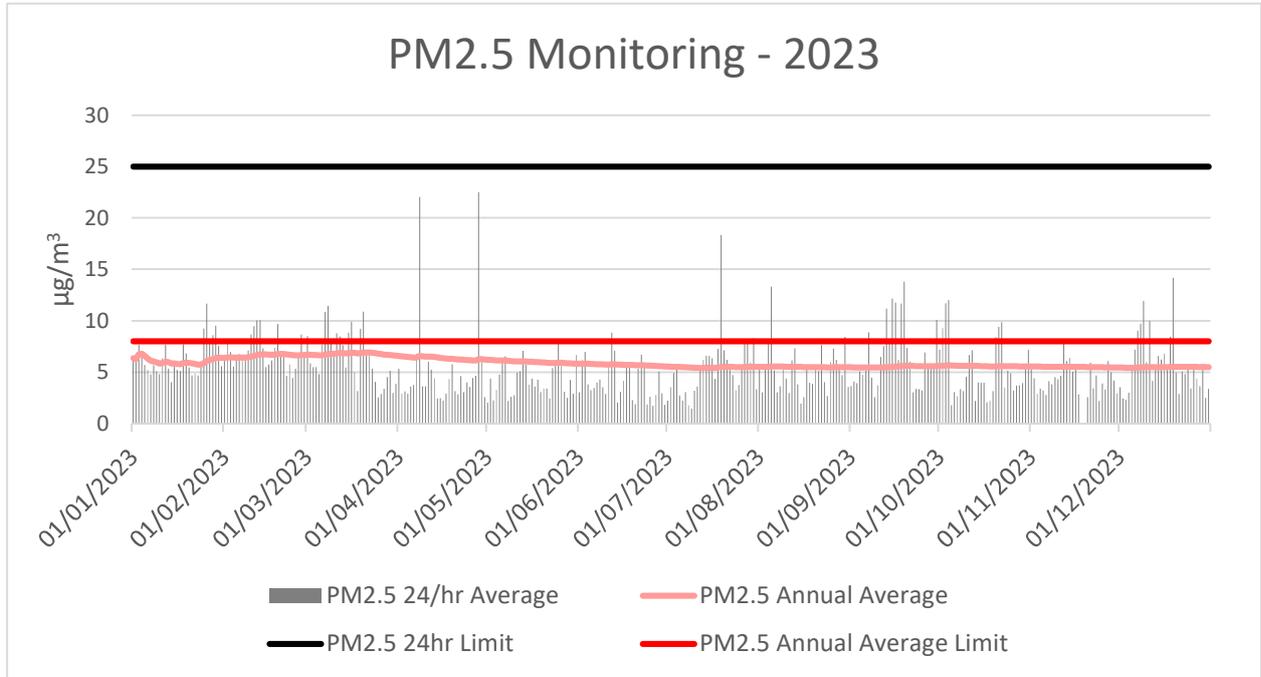
| Variable | December | Total | Valid |
|---------------|----------|-------|-------|
| A/C Temp | 100% | 8928 | 8927 |
| A1 | 100% | 8928 | 8927 |
| A1_Scaled | 100% | 8928 | 8927 |
| Bypass Flow | 100% | 8928 | 8927 |
| Cap Temp | 100% | 8928 | 8927 |
| Case Temp | 100% | 8928 | 8927 |
| Config | 100% | 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 December 2023. The 12-month rolling average PM_{2.5} value on 31 December 2023 was 5.48 $\mu\text{g}/\text{m}^3$. PM_{2.5} data availability in December 2023 was 100%. The 2023 year to date PM_{2.5} data availability is 98.21%.

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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 January 2024 | | |
| 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 |
| Sept-23 | 13.4 | 2.4 | 34.5 |
| Oct-23 | 92 | 6.9 | 35.2 |
| Nov-23 | 87.2 | 11.2 | 30.2 |
| Dec-23 | 67.6 | 14.7 | 41.4 |

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| Variable | December | Total | Valid |
|------------------|----------|-------|-------|
| Baro (Corrected) | 94.7% | 2976 | 2817 |
| 10m Temp | 94.7% | 2976 | 2817 |
| 2m Temp | 94.7% | 2976 | 2817 |
| A1 | 94.7% | 2976 | 2817 |
| A1_Scaled | 94.7% | 2976 | 2817 |
| Assumed Temp | 94.7% | 2976 | 2817 |
| Barometric | 94.7% | 2976 | 2817 |
| Config | 94.7% | 2976 | 2817 |
| Daily Evap | 94.7% | 2976 | 2817 |
| Daily Rain | 94.7% | 2976 | 2817 |
| Delta T | 94.7% | 2976 | 2817 |
| Dew Point | 94.7% | 2976 | 2817 |
| Dig-In | 94.7% | 2976 | 2817 |
| Dig-Latch | 94.7% | 2976 | 2817 |
| ESN | 94.7% | 2976 | 2817 |
| FDI | 94.7% | 2976 | 2817 |
| Heat Index | 94.7% | 2976 | 2817 |
| Humidity | 94.7% | 2976 | 2817 |
| Mobile Signal | 94.7% | 2976 | 2817 |
| Rain | 94.7% | 2976 | 2817 |
| Raw Evap | 94.7% | 2976 | 2817 |
| S Class | 94.7% | 2976 | 2817 |
| Scalar WS | 94.7% | 2976 | 2817 |
| Sigma | 94.7% | 2976 | 2817 |
| Site | 0.0% | 2976 | 0 |
| Solar Radiation | 94.7% | 2976 | 2817 |
| Vector WD | 94.7% | 2976 | 2817 |
| Vector WS | 94.7% | 2976 | 2817 |
| Volts | 94.7% | 2976 | 2817 |
| Wind Chill | 94.7% | 2976 | 2817 |
| Wind Direction | 94.7% | 2976 | 2817 |
| Wind Speed | 94.7% | 2976 | 2817 |
| WS Avg | 94.7% | 2976 | 2817 |
| WS Gust | 94.7% | 2976 | 2817 |