



Centennial Coal



CENTENNIAL Clarence

Environmental Monitoring Data

November 2018



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INTRODUCTION

This monitoring report has been prepared to make environmental monitoring data collected at Clarence Colliery available to members of the public in accordance with the requirements of Part 3.5, Section 66(6) of the Protection of the Environment Operations Act 1997. This document also satisfies conditions 13 (Air Quality Impact Assessment Criteria) and 15 (Noise Impact Assessment Criteria) under Schedule 3 of Development Consent 504-00 and summarises environmental monitoring results for Clarence Colliery for the period of 1 November 2018 to 30 November 2018 (herein referred to as the reporting period).

Table 1 – Colliery Information

| | |
|------------------|--|
| Premises Details | Clarence Colliery |
| Address | Off Bells Line of Road, Newnes Junction NSW 2790 |
| Licensee | Clarence Colliery |
| EPL no | 726 |
| EPL location | EPL 726 |

SURFACE WATER QUALITY

The following parameters are monitored monthly during discharge at Licensed Discharge Point 2 (LDP002), Licensed Discharge Point 3 (LDP003) and Licensed Discharge Point 4 (LDP004) in accordance with the requirements of Environmental Protection License 726 (EPL 726). Licensed Discharge Point 1 (LDP001) is no longer used by Clarence Colliery.

LDP002 discharges treated underground water from the Clarence water treatment plant and treated surface water. LDP003 and LDP004 provide emergency discharge during periods of sustained heavy rainfall. There were no discharges from LDP003 and LDP004 during the reporting period.

Water quality results are tabulated in Table 2.

Table 2 – Water Quality

| | | | | |
|----------------------------|-------------|------------------|--|------------------|
| Data Published: | 18/12/2018 | Licensee: | Clarence Colliery Pty Ltd | |
| Data Sampled: | 14/11/2018 | Address: | Off Bells Line Road Newnes Junction 2790 | |
| Data Obtained: | 17//12/2018 | EPL No. | 726 | |
| LDP002 | | | | |
| Analyte | Unit | Limit | 14/11/2018 | Compliant |
| Arsenic (Filtered) | mg/L | 0.013 | <0.001 | Yes |
| Boron (Filtered) | mg/L | 0.1 | <0.05 | Yes |
| Cadmium (Filtered) | mg/L | 0.0002 | <0.0001 | Yes |
| Chloride | mg/L | 25 | 4 | Yes |
| Chromium (Filtered) | mg/L | 0.001 | <0.001 | Yes |
| Cobalt (Filtered) | mg/L | 0.0025 | 0.0025 | Yes |
| Copper (Filtered) | mg/L | 0.0014 | <0.001 | Yes |
| Iron (Filtered) | mg/L | 0.3 | <0.05 | Yes |
| Fluoride (Total) | mg/L | 1 | <0.1 | Yes |
| Lead (Filtered) | mg/L | 0.0034 | <0.001 | Yes |
| Lithium (Filtered) | mg/L | 0.1 | 0.019 | Yes |
| Manganese (Filtered) | mg/L | 0.5 | 0.016 | Yes |
| Mercury (Filtered) | mg/L | 0.00006 | <0.00004 | Yes |
| Nickel (Filtered) | mg/L | 0.011 | 0.008 | Yes |
| Nitrogen (Total) | mg/L | 0.25 | <0.1 | Yes |
| Oil & Grease | mg/L | 10 | <5 | Yes |
| pH | pH Units | 6-8.5 | 8.1 | Yes |
| Phosphorous (Total) | mg/L | 0.02 | 0.01 | Yes |
| Selenium (Total) | mg/L | 0.005 | <0.0002 | Yes |
| Silver (Filtered) | mg/L | 0.00005 | <0.00001 | Yes |
| Sulphur as Sulfate (Total) | mg/L | 250 | 133 | Yes |
| TSS | mg/L | 30 | 5 | Yes |
| Zinc (Filtered) | mg/L | 0.008 | 0.012 | No |
| Electrical Conductivity | µS/cm | Monitor Only | 334 | Yes |
| LDP003 | | | | |
| Analyte | Unit | Limit | Result | Compliant |
| No Discharge | | | | |
| LDP004 | | | | |
| Analyte | Unit | Limit | Result | Compliant |
| No Discharge | | | | |
| Point 9 | | | | |
| Analyte | Unit | Limit | 14/11/2018 | Compliant |
| Arsenic (Filtered) | mg/L | Monitor Only | <0.001 | Yes |
| Boron (Filtered) | mg/L | Monitor Only | <0.05 | Yes |
| Cadmium (Filtered) | mg/L | Monitor Only | <0.0001 | Yes |
| Chloride | mg/L | Monitor Only | 2 | Yes |
| Chromium (Filtered) | mg/L | Monitor Only | <0.001 | Yes |
| Cobalt (Filtered) | mg/L | Monitor Only | 0.004 | Yes |
| Copper (Filtered) | mg/L | Monitor Only | <0.001 | Yes |
| Iron (Filtered) | mg/L | Monitor Only | <0.05 | Yes |
| Fluoride (Total) | mg/L | Monitor Only | <0.1 | Yes |
| Lead (Filtered) | mg/L | Monitor Only | <0.001 | Yes |
| Lithium (Filtered) | mg/L | Monitor Only | 0.020 | Yes |

| Point 9 | | | | |
|----------------------------|----------|--------------|------------|-----------|
| Analyte | Unit | Limit | 14/11/2018 | Compliant |
| Manganese (Filtered) | mg/L | Monitor Only | 0.062 | Yes |
| Mercury (Filtered) | mg/L | Monitor Only | <0.00004 | Yes |
| Nickel (Filtered) | mg/L | Monitor Only | 0.023 | Yes |
| Nitrogen (Total) | mg/L | Monitor Only | 0.2 | Yes |
| Oil & Grease | mg/L | Monitor Only | <5 | Yes |
| pH | pH Units | Monitor Only | 8.2 | Yes |
| Phosphorous (Total) | mg/L | Monitor Only | 0.05 | Yes |
| Selenium (total) | mg/L | Monitor Only | <0.0002 | Yes |
| Silver (Filtered) | mg/L | Monitor Only | <0.00001 | Yes |
| Sulphur as Sulfate (Total) | mg/L | Monitor Only | 144 | Yes |
| TSS | mg/L | Monitor Only | <5 | Yes |
| Zinc (Filtered) | mg/L | Monitor Only | 0.029 | Yes |
| Electrical Conductivity | µS/cm | Monitor Only | 310 | Yes |

Figure 1 below depicts 12 monthly pH results at LDP002, as well as the upper and lower concentration limits.

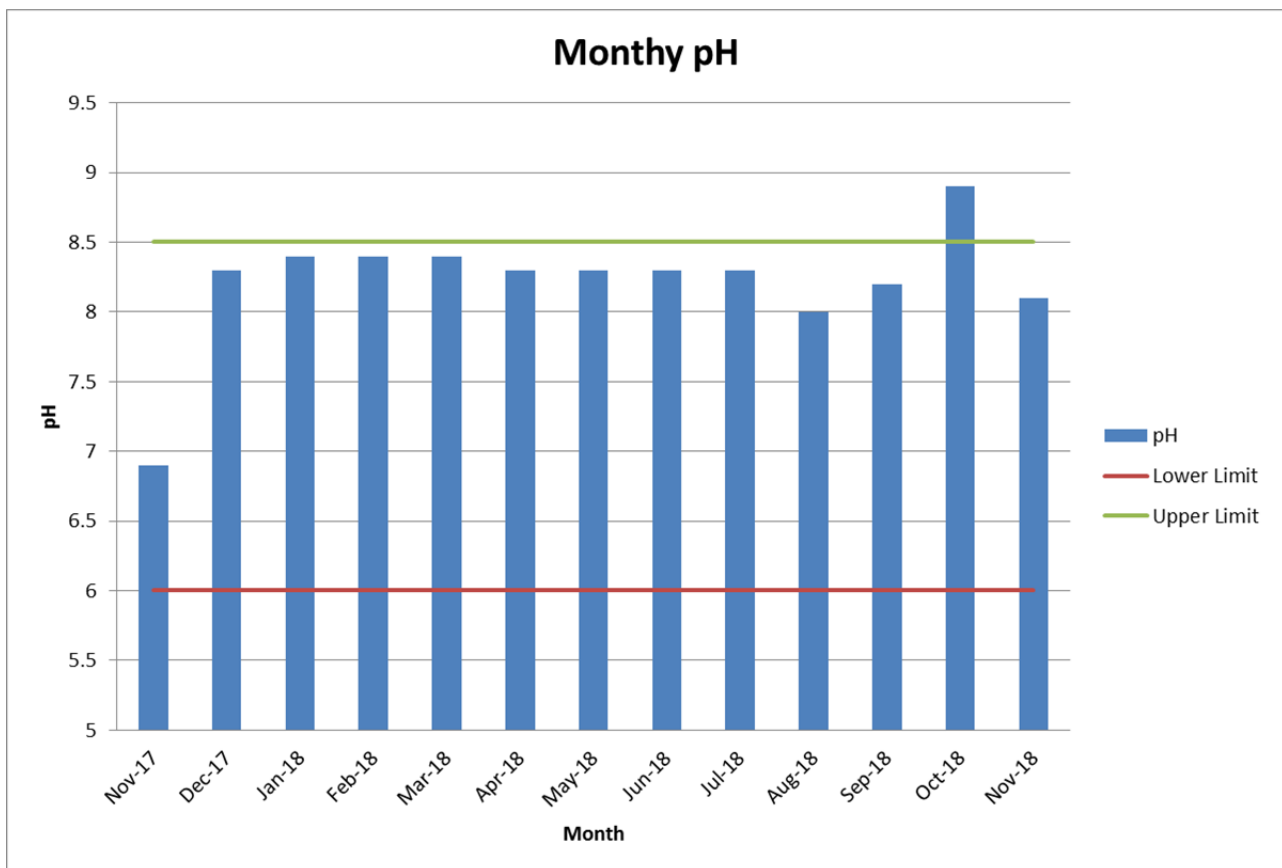


Figure 1 - LDP002 Monthly pH

WATER VOLUME

Water volume discharged off site at LDP002 is measured in accordance with EPL 726. EPL 726 limits the maximum volume of water discharged from LDP002 to 25,000 kL/day. This limit may be exceeded when there is greater than 10mm of rainfall within a 24 hour period. A total of 342585 kL of water was discharged from LDP002 during the reporting period.

A summary of total water volume discharged, including maximum daily discharge for the month, is provided in Table 3.

Table 3 – Discharge Summary for LDP002-LDP004

| Date Published | 18/12/2018 | Licensee | Clarence Colliery | | | | |
|---|-----------------|--|---|------------|---------------|-----------|-------------------------|
| Date Sampled | Continuous | Address | Off Bells Line of Road, Newnes Junction | | | | |
| Date Obtained | 26/11/2018 | EPL No. | 726 | | | | |
| Discharge Point | Unit of Measure | Monitoring Frequency Required by Licence | No. of Days | Min. Value | Daily Average | Max Value | Licence Exceed (YES/NO) |
| LDP002 - Treated Mine Water and Surface Water Discharge | kl | Continuous [#] | 30 | 1843 | 11419 | 17194 | NO |
| LDP003 – Emergency Discharge Only | kl | Estimate During Discharge | 0 | n/a | n/a | n/a | NO |
| LDP004 – Emergency Discharge Only | kl | Estimate During Discharge | 0 | n/a | n/a | n/a | NO |

- Taken from WTP SCADA system as LDP002 flow meter was not operational for part of June.

Figure 2 below depicts the monthly discharges at LDP002.

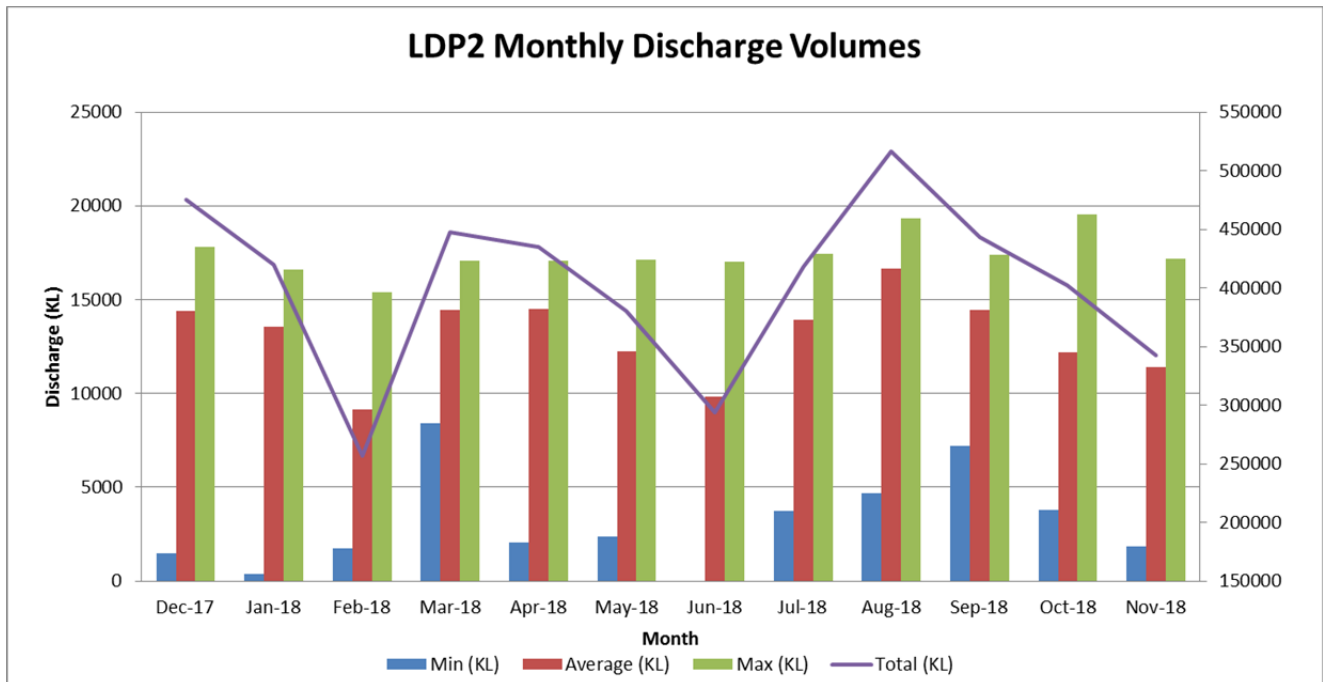


Figure 2 – LDP2 Monthly Discharge Volumes

AIR QUALITY MONITORING

The air quality monitoring results for the reporting period are summarized below.

Depositional Dust

Depositional dust (g/m²/mth) results (insoluble solids) for the reporting period are shown in Table 4. The average year to date is below the maximum allowable annual average dust level of 4g/m²/mth in accordance with Schedule 3 Condition 13 of Development Consent DA504-00. During November it was found that a DG2 had been deliberately broken by vandals so data is missing for this location.

Table 4 – Depositional Dust

| Date Published | 18/12/2018 | Licensee | Clarence Colliery | |
|----------------|-------------------------|--------------|---|----------------------|
| Date Sampled | November 2018 | Address | Off Bells Line of Road, Newnes Junction | |
| Date Obtained | 17/12//2018 | EPL No. | 726 | |
| Dust Gauge | Unit of measure | Days Exposed | Insoluble Solids | Annual Average Limit |
| DG1 | g/m ² /month | 30 | 3.0 | 4 |
| DG2 | g/m ² /month | 30 | - | 4 |
| DG3 | g/m ² /month | 30 | 1.7 | 4 |

Figure 3 and 4 depict the monthly dust gauge results and the rolling 12 month average depositional dust gauge.

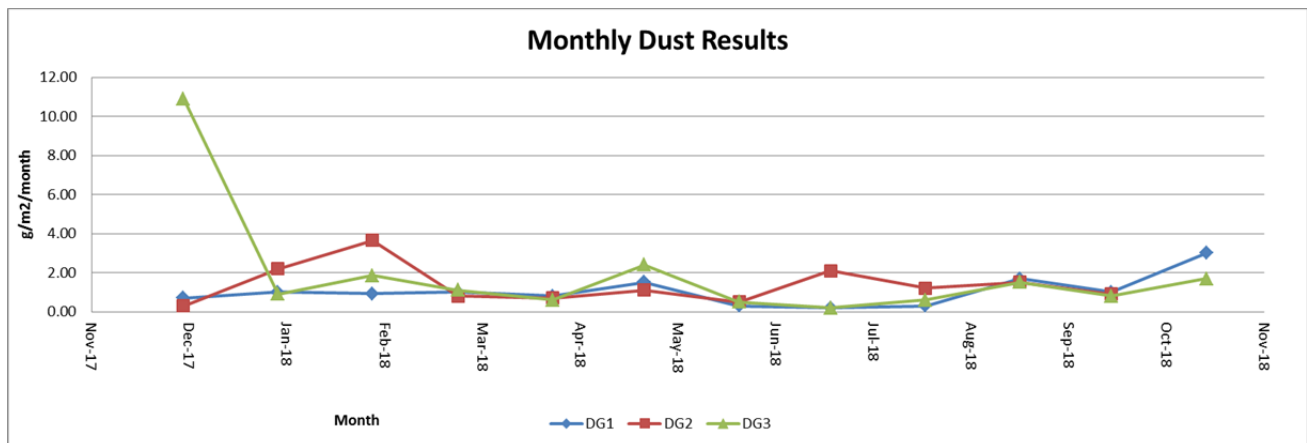


Figure 3 – Monthly Dust Gauge Results

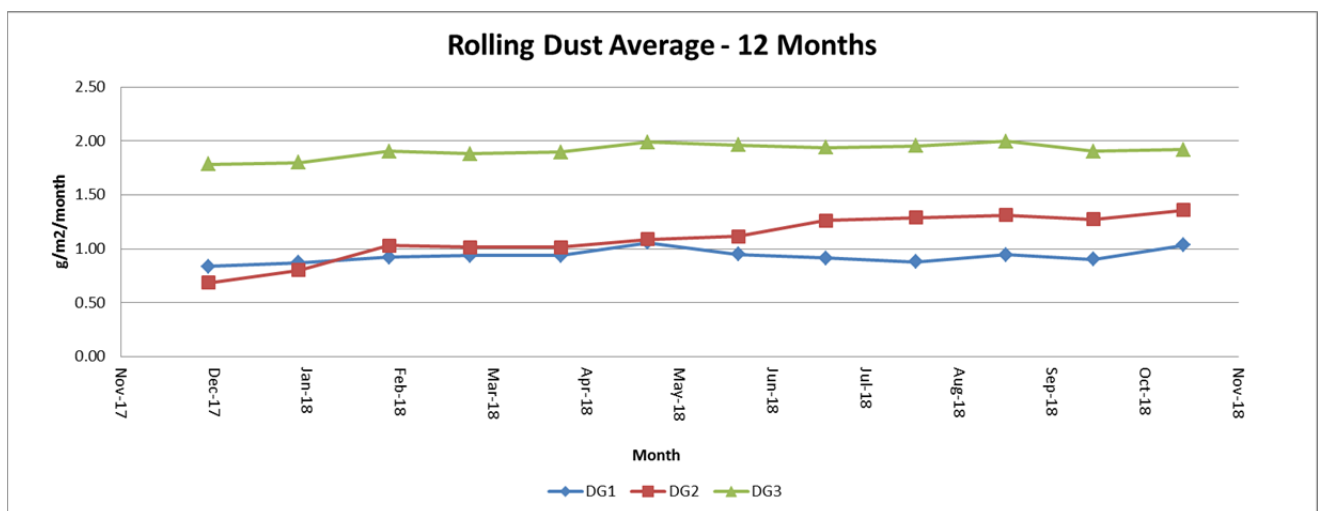


Figure 4 – Rolling 12 Month Dust Gauge Averages

COMPLAINTS

No Complaints were received for the reporting period. A summary of complaints received at Clarence Colliery for 2018 is shown in Table 5 below.

Table 5 – Complaints received at Clarence Colliery 2018

| Data Published: | | 18/12/2018 | | Licensee: | | Clarence Colliery | |
|-----------------|----------|------------|-------|-------------------------------|--|-------------------|--|
| Data Obtained: | | 18/12/2018 | | EPL No. | | 726 | |
| Month | Air/Dust | Water | Noise | Other | | | |
| January 2018 | Nil | Nil | Nil | Nil | | | |
| February 2018 | Nil | Nil | Nil | Nil | | | |
| March 2018 | Nil | Nil | Nil | Nil | | | |
| April 2018 | Nil | Nil | Nil | Nil | | | |
| May 2018 | Nil | Nil | Nil | Nil | | | |
| June 2018 | Nil | Nil | Nil | Nil | | | |
| July 2018 | Nil | Nil | Nil | Traffic on Bells line of Road | | | |
| August 2018 | Nil | Nil | Nil | Nil | | | |
| September 2018 | Nil | Nil | Nil | Nil | | | |
| October 2018 | Nil | Nil | Nil | Nil | | | |
| November 2018 | Nil | Nil | Nil | Nil | | | |

WEATHER

A summary of rainfall and temperature data recorded at the onsite meteorological monitoring station during the reporting period is shown in Table 6.

Table 6 – 12 Month Meteorological Data for Clarence Colliery

| Data Published: | | 18/12/2018 | | Licensee: | | Clarence Colliery | |
|-----------------|---------------------|------------------------------|--|------------------------------|--|-------------------|--|
| Data Obtained: | | 18/12/2018 | | EPL No. | | 726 | |
| Month | Total Rainfall (mm) | Minimum Temperature (°C) @2m | | Maximum Temperature (°C) @2m | | | |
| December 2017 | 81.0 | 8.3 | | 32.3 | | | |
| January 2018 | 39.4 | 7.83 | | 36.55 | | | |
| February 2018 | 103 | 7.58 | | 33.88 | | | |
| March 2018 | 82.2 | 2.75 | | 30.73 | | | |
| April 2018 | 22.8 | 5.34 | | 29.17 | | | |
| May 2018 | 12.6 | 0.69 | | 20.18 | | | |
| June 2018 | 2.0 | -1.28 | | 13.26 | | | |
| July 2018 | 13.4 | -2.9 | | 16.7 | | | |
| August 2018 | 50.2 | -4.1 | | 17.29 | | | |
| September 2018 | 53.4 | -1.36 | | 23.13 | | | |
| October 2018 | 133.6 | 2.71 | | 25.33 | | | |
| November 2018 | 134.4 | 3.66 | | 28.63 | | | |

Figures 5, 6, and 7 below depicts the 12 months worth of weather data recorded at Clarence Colliery including Rainfall, Maximum and Minimum temperatures, Wind speed and direction, and relative humidity.

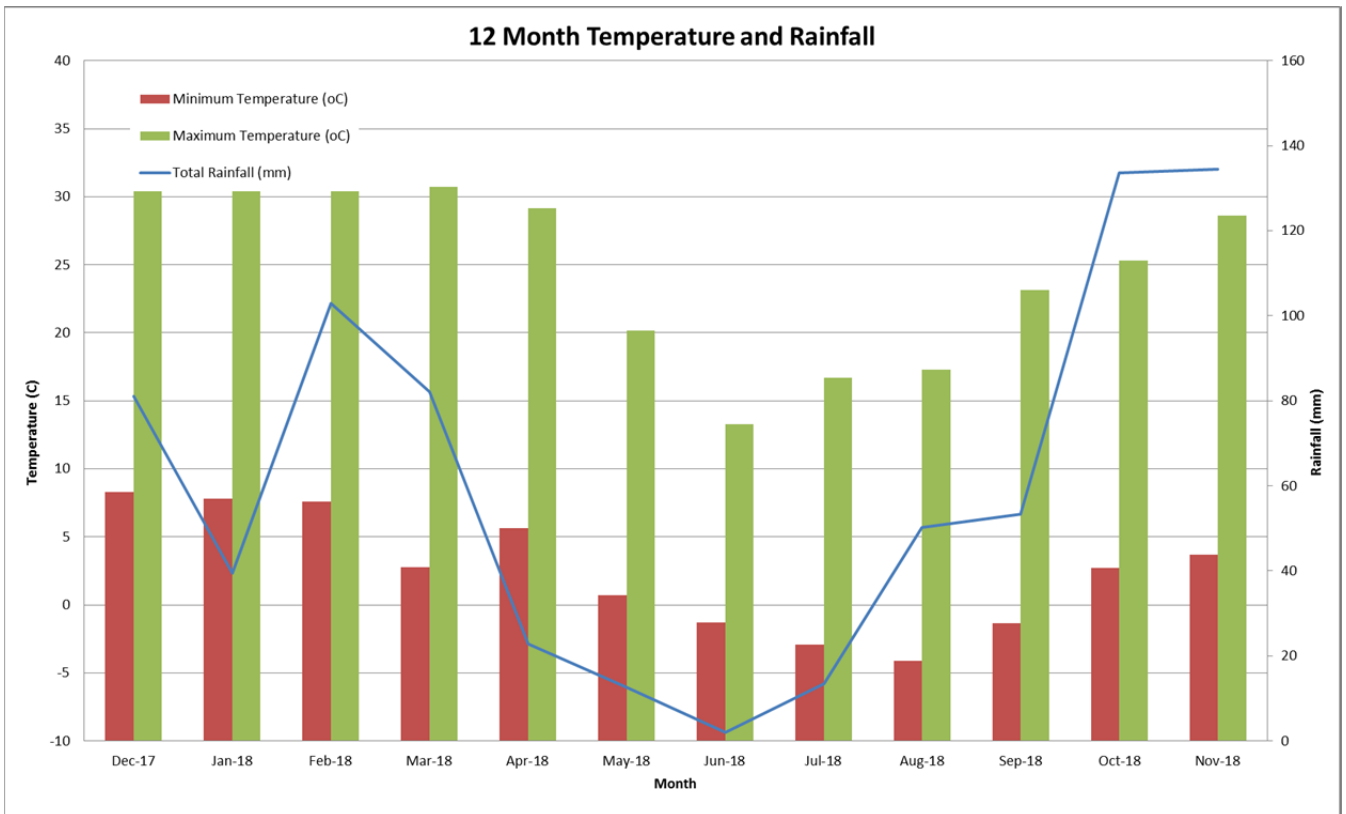


Figure 5 - 12 Month Temperature and Rainfall Data

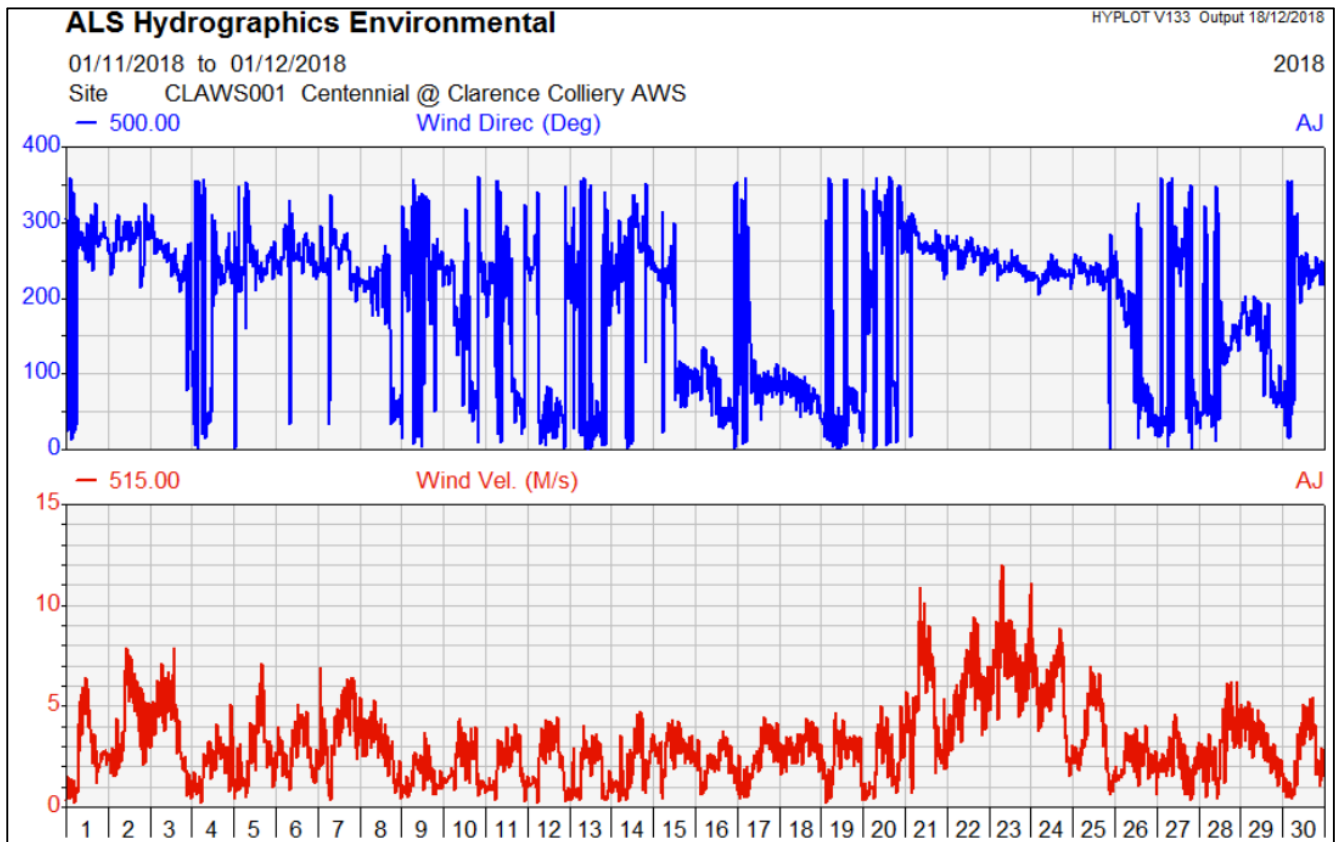


Figure 6 - Wind Speed and direction - November

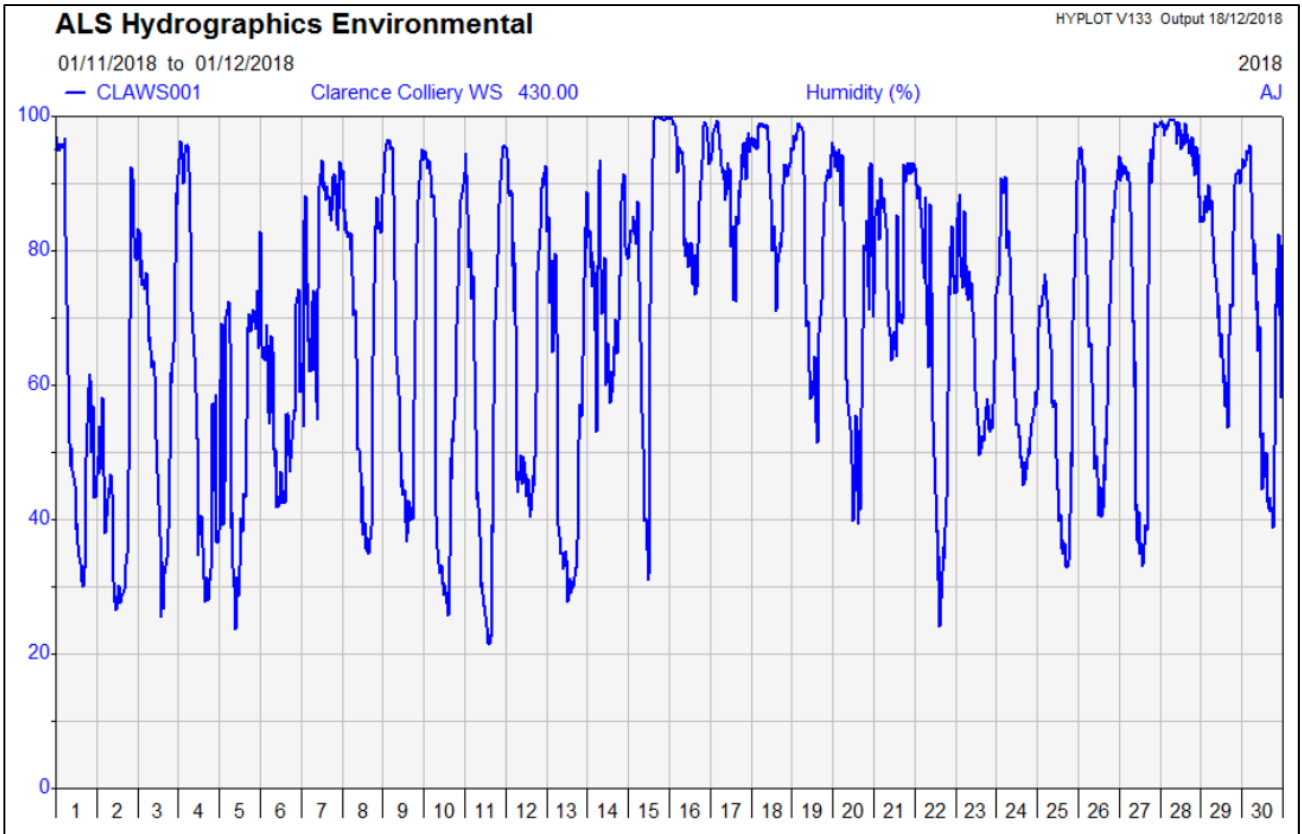


Figure 7 –Relative humidity November

APPENDIX 1 – PLAN CL1405

Figure 8 – Clarence Colliery Pit Top Monitoring Locations

