



**Centennial Coal**



***CENTENNIAL Clarence***

**Environmental Monitoring Data**

**August 2018**



## TABLE OF CONTENTS

<b>Introduction .....</b>	<b>4</b>
<b>Surface water quality.....</b>	<b>4</b>
<b>Water volume .....</b>	<b>7</b>
<b>Air Quality Monitoring .....</b>	<b>8</b>
<b>Complaints .....</b>	<b>9</b>
<b>Weather .....</b>	<b>9</b>
<b>Appendix 1 – Plan CL1405.....</b>	<b>12</b>

**TABLES**

Table 1 – Colliery Information..... 4

Table 2 – Water Quality ..... 5

Table 3 – Discharge Summary for LDP002-LDP004 ..... 7

Table 4 – Depositional Dust ..... 8

Table 5 – Complaints received at Clarence Colliery 2018..... 9

Table 6 – 12 Month Meteorological Data for Clarence Colliery..... 9

**FIGURES**

Figure 1 - LDP002 Monthly pH ..... 6

Figure 2 – LDP2 Monthly Discharge Volumes ..... 7

Figure 3 – Monthly Dust Gauge Results ..... 8

Figure 4 – Rolling 12 Month Dust Gauge Averages..... 8

Figure 5 - 12 Month Temperature and Rainfall Data ..... 10

Figure 6 - 12 Month Wind Speed and direction..... 10

Figure 7 – 12 Monthly Relative humidity ..... 11

## 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 August 2018 to 31 August 2018 (herein referred to as the reporting period).

Table 1 – Colliery Information

Colliery Information	
Premises Details	Clarence Colliery
Address	Off Bells Line of Road, Newnes Junction NSW 2790
Licensee	Clarence Colliery
EPL no	726
EPL location	<a href="https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=116841&amp;SYSUID=1&amp;LICID=726">https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=116841&amp;SYSUID=1&amp;LICID=726</a>

## 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

<b>Data Published:</b>	7/9/2018	<b>Licensee:</b>	Clarence Colliery Pty Ltd	
<b>Data Sampled:</b>	16/08/2018	<b>Address:</b>	Off Bells Line Road Newnes Junction 2790	
<b>Data Obtained:</b>	9//8/2018	<b>EPL No.</b>	726	
<b>LDP002</b>				
<b>Analyte</b>	<b>Unit</b>	<b>Limit</b>	<b>16/08/2018</b>	<b>Compliant</b>
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	6	Yes
Chromium (Filtered)	mg/L	0.001	<0.001	Yes
Cobalt (Filtered)	mg/L	0.0025	0.005	No
Copper (Filtered)	mg/L	0.0014	<0.001	Yes
Iron (Filtered)	mg/L	0.3	<0.05	Yes
Fluoride (Total)	mg/L	1	<0.01	Yes
Lead (Filtered)	mg/L	0.0034	<0.001	Yes
Lithium (Filtered)	mg/L	0.1	0.022	Yes
Manganese (Filtered)	mg/L	0.5	0.052	No
Mercury (Filtered)	mg/L	0.00006	<0.00004	Yes
Nickel (Filtered)	mg/L	0.011	0.014	No
Nitrogen (Total)	mg/L	0.25	<0.1	Yes
Oil & Grease	mg/L	10	6	Yes
pH	pH Units	6-8.5	8.0	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 Sulphate (Total)	mg/L	250	118	Yes
TSS	mg/L	30	<5	Yes
Zinc (Filtered)	mg/L	0.008	0.006	Yes
Electrical Conductivity	µS/cm	Monitor Only	315	Yes
<b>LDP003</b>				
<b>Analyte</b>	<b>Unit</b>	<b>Limit</b>	<b>Result</b>	<b>Compliant</b>
No Discharge				
<b>LDP004</b>				
<b>Analyte</b>	<b>Unit</b>	<b>Limit</b>	<b>Result</b>	<b>Compliant</b>
No Discharge				
<b>Point 9</b>				
<b>Analyte</b>	<b>Unit</b>	<b>Limit</b>	<b>14/8/2018</b>	<b>Compliant</b>
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	4	Yes
Chromium (Filtered)	mg/L	Monitor Only	<0.001	Yes
Cobalt (Filtered)	mg/L	Monitor Only	0.007	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	0.022	Yes

Point 9				
Analyte	Unit	Limit	14/8/2018	Compliant
Manganese (Filtered)	mg/L	Monitor Only	0.087	Yes
Mercury (Filtered)	mg/L	Monitor Only	<0.00004	Yes
Nickel (Filtered)	mg/L	Monitor Only	0.029	Yes
Nitrogen (Total)	mg/L	Monitor Only	<0.1	Yes
Oil & Grease	mg/L	Monitor Only	<5	Yes
pH	pH Units	Monitor Only	8.5	Yes
Phosphorous (Total)	mg/L	Monitor Only	<0.01	Yes
Selenium (total)	mg/L	Monitor Only	<0.0002	Yes
Silver (Filtered)	mg/L	Monitor Only	<0.00001	Yes
Sulphur as Sulphate (Total)	mg/L	Monitor Only	127	Yes
TSS	mg/L	Monitor Only	<5	Yes
Zinc (Filtered)	mg/L	Monitor Only	0.048	Yes
Electrical Conductivity	µS/cm	Monitor Only	334	Yes

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

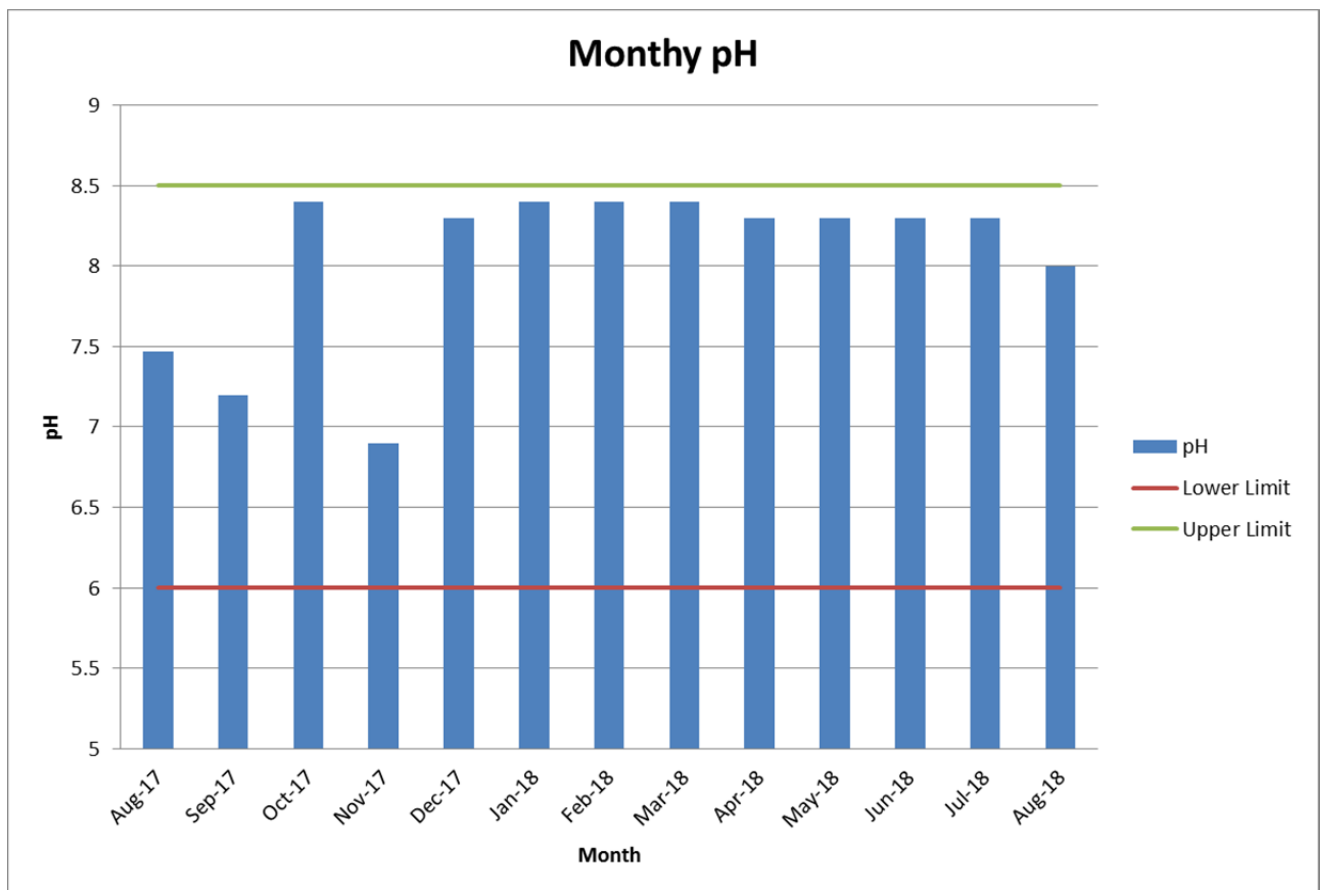


Figure 1 - LDP002 Monthly pH

## 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 51,6637 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	11/09/2018	Licensee	Clarence Colliery				
Date Sampled	Continuous	Address	Off Bells Line of Road, Newnes Junction				
Date Obtained	11/09/2018	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 <sup>#</sup>	31	4657	16665	19320	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.

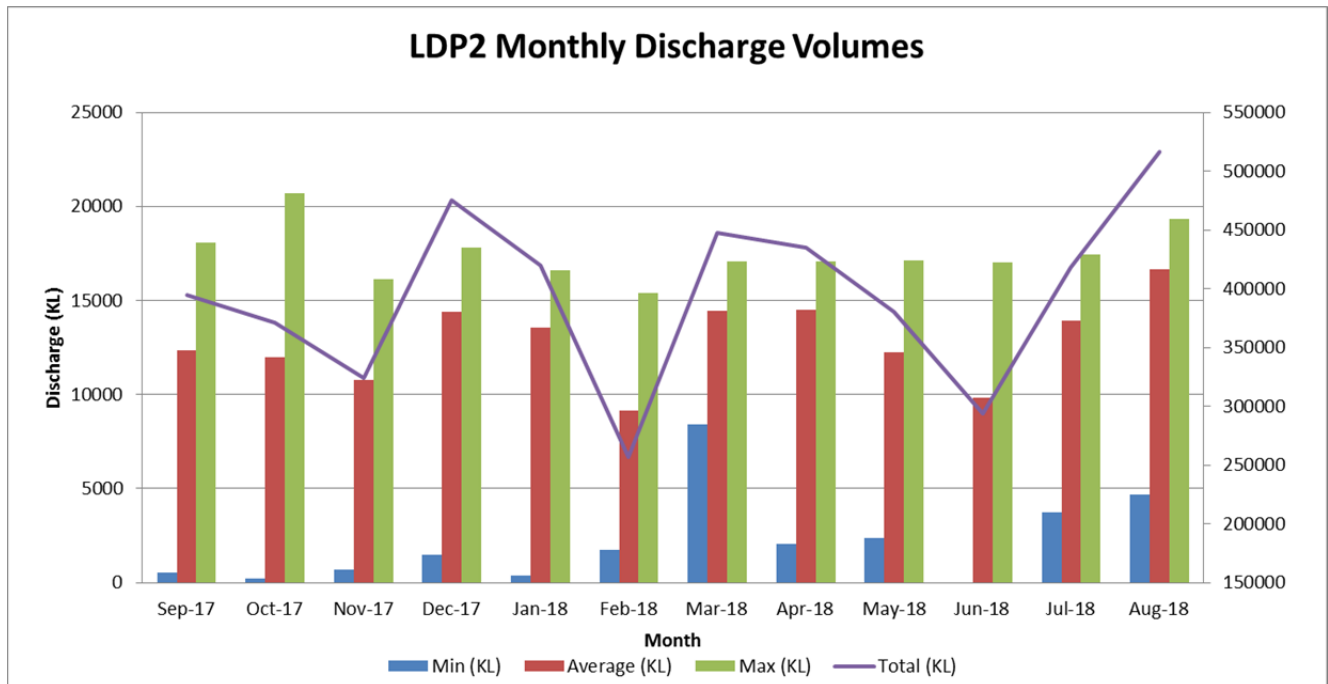


Figure 2 – LDP2 Monthly Discharge Volumes

## AIR QUALITY MONITORING

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

### Depositional Dust

Depositional dust (g/m<sup>2</sup>/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/m<sup>2</sup>/mth in accordance with Schedule 3 Condition 13 of Development Consent DA504-00.

Table 4 – Depositional Dust

Date Published	11/09/2018	Licensee	Clarence Colliery	
Date Sampled	August 2018	Address	Off Bells Line of Road, Newnes Junction	
Date Obtained	7/09//2018	EPL No.	726	
Dust Gauge	Unit of measure	Days Exposed	Insoluble Solids	Annual Average Limit
DG1	g/m <sup>2</sup> /month	28	0.3	4
DG2	g/m <sup>2</sup> /month	28	1.2	4
DG3	g/m <sup>2</sup> /month	28	0.6	4

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

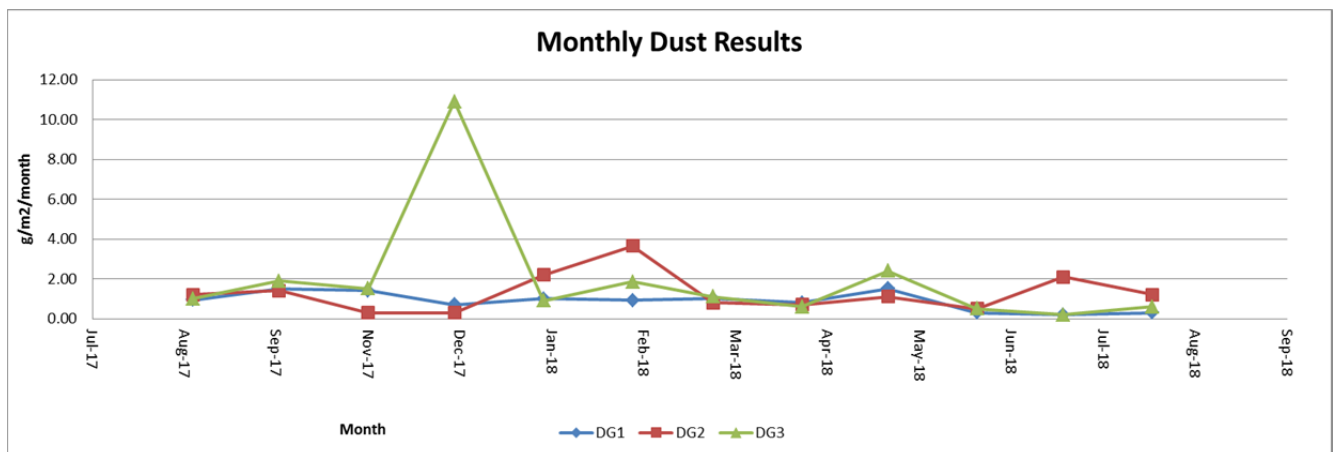


Figure 3 – Monthly Dust Gauge Results

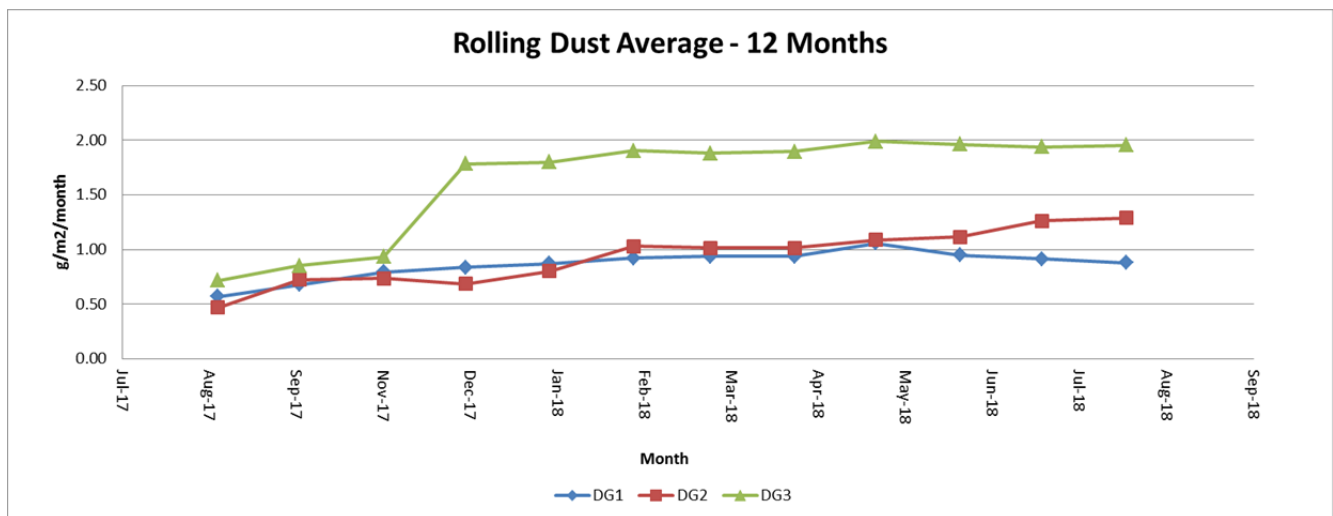


Figure 4 – Rolling 12 Month Dust Gauge Averages



## 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

<b>Data Published:</b>	15/07/2018	<b>Licensee:</b>	Clarence Colliery	
<b>Data Sampled:</b>	10/07//2018	<b>Address:</b>	Off Bells Line of Road, Newnes Junction	
<b>Data Obtained:</b>	10/07//2018	<b>EPL No.</b>	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

## 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

<b>Data Published:</b>	15/07/2018	<b>Licensee:</b>	Clarence Colliery	
<b>Data Obtained:</b>	10/07//2018	<b>EPL No.</b>	726	
Month	Total Rainfall (mm)	Minimum Temperature (°C) @2m	Maximum Temperature (°C) @2m	
September 2017	3.6	-1.97	27.95	
October 2017	77.2	3.61	26.07	
November 2017	55.2	4.15	25.88	
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	

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.

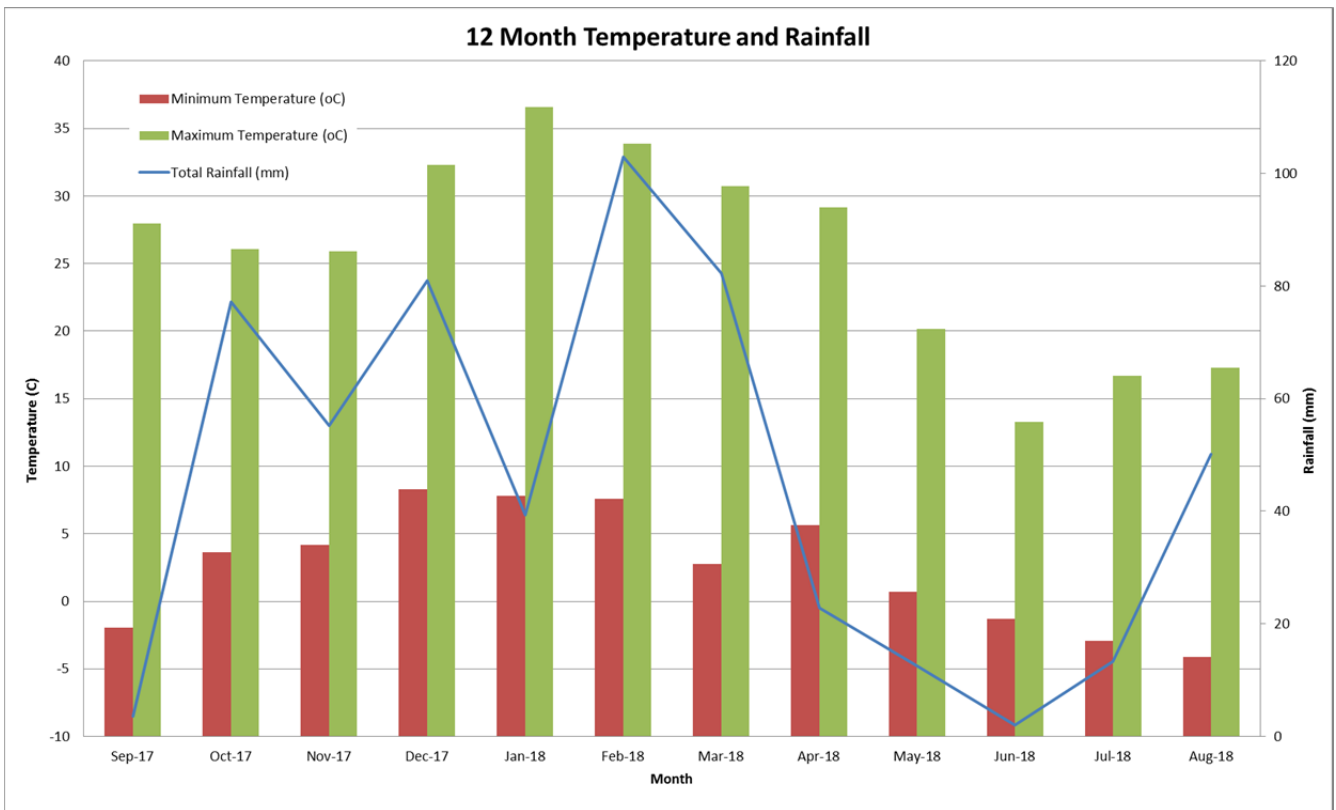


Figure 5 - 12 Month Temperature and Rainfall Data

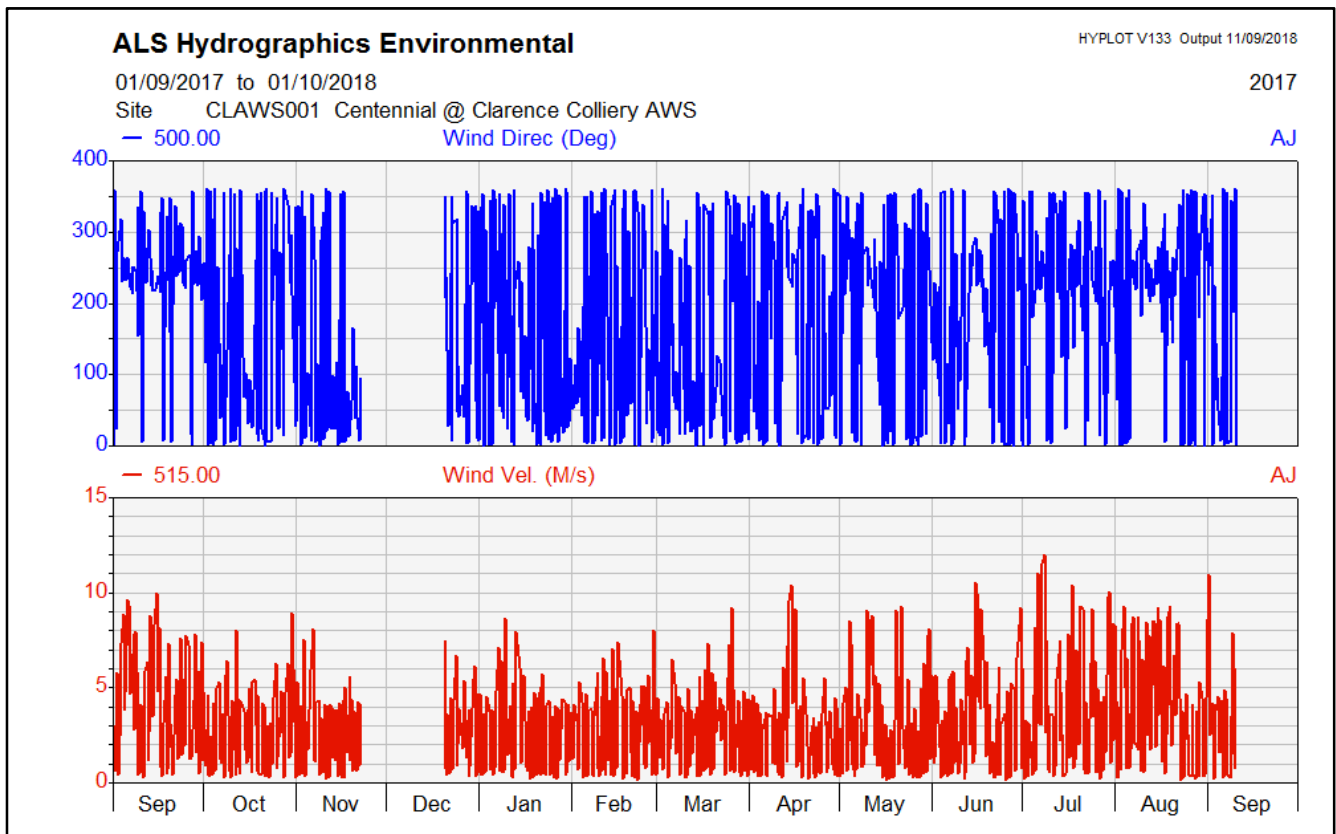


Figure 6 - 12 Month Wind Speed and direction

ALS Hydrographics Environmental

HYPLOT V133 Output 11/09/2018

01/09/2017 to 01/10/2018

2017

— CLAWS001

Clarence Colliery WS 430.00

Humidity (%)

AJ

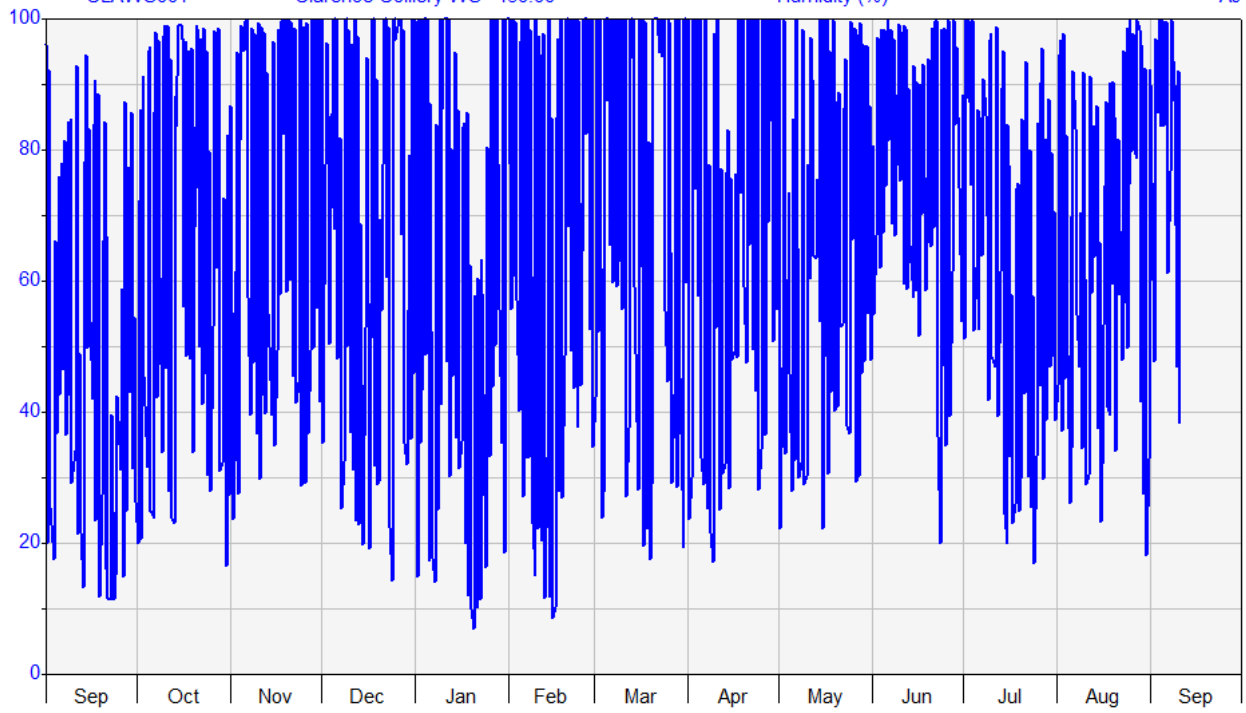


Figure 7 – 12 Monthly Relative humidity

# **APPENDIX 1 – PLAN CL1405**

Figure 9 – Clarence Colliery Pit Top Monitoring Locations

