



Clarence Colliery

Environmental Monitoring Data

October 2020

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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 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

Licensed Discharge Point 2 (LDP2), Licensed Discharge Point 3 (LDP3) and Licensed Discharge Point 4 (LDP4) are monitored in accordance with the requirements of Environmental Protection License 726 (EPL 726).

LDP2 discharges treated water from the Clarence water treatment plant and LDP3 and LDP4 provide emergency discharge during periods of sustained heavy rainfall. Point 9 is located on the Wollangambe River and is not required to be assessed against concentration limits.

There were no discharges from LDP3 and LDP4 during the reporting period.

Water quality results are tabulated in Table 2 and Table 3 below.

Table 2 – Water Quality Results for the month at LDP2

LDP2				
Analyte	Unit	Limit	20/10/2020	Compliant?
Arsenic (Dissolved)	mg/L	0.013	<0.001	Yes
Boron (Dissolved)	mg/L	0.1	<0.05	Yes
Cadmium (Dissolved)	mg/L	0.0002	<0.0001	Yes
Chloride	mg/L	25	14	Yes
Chromium (Dissolved)	mg/L	0.001	<0.001	Yes
Cobalt (Dissolved)	mg/L	0.0025	0.0022	Yes
Copper (Dissolved)	mg/L	0.0014	<0.001	Yes
Iron (Dissolved)	mg/L	0.3	<0.05	Yes
Fluoride (Total)	mg/L	1	<0.1	Yes
Lead (Dissolved)	mg/L	0.0034	<0.001	Yes
Lithium (Dissolved)	mg/L	0.1	0.022	Yes
Manganese (Dissolved)	mg/L	0.5	0.024	Yes
Mercury (Dissolved)	mg/L	0.00006	<0.000005	Yes
Nickel (Dissolved)	mg/L	0.011	0.007	Yes
Nitrogen (Total)	mg/L	0.25	<0.1	Yes
Oil & Grease	mg/L	10	<5	Yes
pH	pH Units	6.0 - 8.5	8.4	Yes
Phosphorous (Total)	mg/L	0.02	<0.01	Yes
Selenium (Total)	mg/L	0.005	<0.0004	Yes
Silver (Dissolved)	mg/L	0.00005	<0.00001	Yes
Sulphur as Sulfate (Total)	mg/L	250	116	Yes
TSS	mg/L	30	6	Yes
Zinc (Dissolved)	mg/L	0.008	<0.005	Yes
Electrical Conductivity	µS/cm	Monitor Only	343	N/A

Table 3 – Water Quality Results for the month at Point 9

Point 9				
Analyte	Unit	Limit	20/10/2020	Compliant?
Arsenic (Filtered)	mg/L	Monitor Only	<0.001	N/A
Boron (Filtered)	mg/L	Monitor Only	<0.05	N/A
Cadmium (Filtered)	mg/L	Monitor Only	<0.0001	N/A
Chloride	mg/L	Monitor Only	11	N/A
Chromium (Filtered)	mg/L	Monitor Only	<0.001	N/A
Cobalt (Filtered)	mg/L	Monitor Only	0.0082	N/A
Copper (Filtered)	mg/L	Monitor Only	<0.001	N/A
Iron (Filtered)	mg/L	Monitor Only	0.26	N/A
Fluoride (Total)	mg/L	Monitor Only	<0.1	N/A
Lead (Filtered)	mg/L	Monitor Only	<0.001	N/A
Lithium (Filtered)	mg/L	Monitor Only	0.012	N/A
Manganese (Filtered)	mg/L	Monitor Only	0.174	N/A
Mercury (Filtered)	mg/L	Monitor Only	<0.0001	N/A
Nickel (Filtered)	mg/L	Monitor Only	0.023	N/A
Nitrogen (Total)	mg/L	Monitor Only	<0.1	N/A
Oil & Grease	mg/L	Monitor Only	<5	N/A
pH	pH Units	Monitor Only	6.1	N/A
Phosphorous (Total)	mg/L	Monitor Only	<0.01	N/A
Selenium (Total)	mg/L	Monitor Only	<0.01	N/A
Silver (Filtered)	mg/L	Monitor Only	<0.001	N/A
Sulphur as Sulfate (Total)	mg/L	Monitor Only	54	N/A
TSS	mg/L	Monitor Only	<5	N/A
Zinc (Filtered)	mg/L	Monitor Only	0.042	N/A
Electrical Conductivity	µS/cm	Monitor Only	215	N/A

Figure 1 below depicts 12 monthly pH results at LDP2, as well as the upper and lower concentration limits.

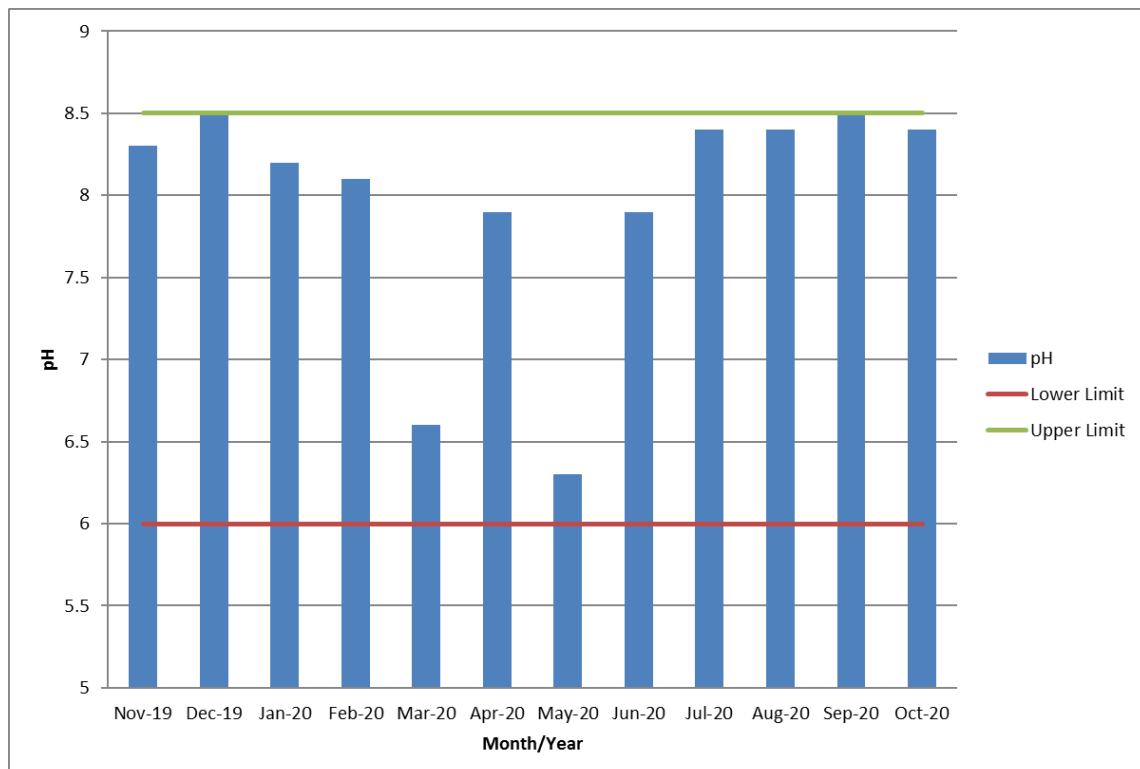


Figure 1. LDP2 Monthly pH

WATER VOLUME

Water volume discharged off site at LDP2 is measured in accordance with EPL 726. EPL 726 limits the maximum volume of water discharged from LDP2 to 25,000 kL/day. This limit may be exceeded when there is greater than 10mm of rainfall within a 24 hour period.

A summary of total water volume discharged, including maximum daily discharge for the month, is provided in Table 4.

Table 4 - Discharge Summary for LDP2, LDP3, LDP4

Date Sampled: Continuous		Date Obtained: 01/11/2020					
Discharge Point	Unit of Measure	Monitoring Frequency Required by Licence	No. of Days	Min. Value (kL)	Daily Average (kL)	Max Value (kL)	Licence Exceed (YES/NO)
LDP2	kL	Continuous	31	238	10,722	20,560	NO
LDP3	kL	Estimate During Discharge	0	N/A	N/A	N/A	NO
LDP4	kL	Estimate During Discharge	0	N/A	N/A	N/A	NO

Figure 2 below depicts the monthly discharges at LDP2.

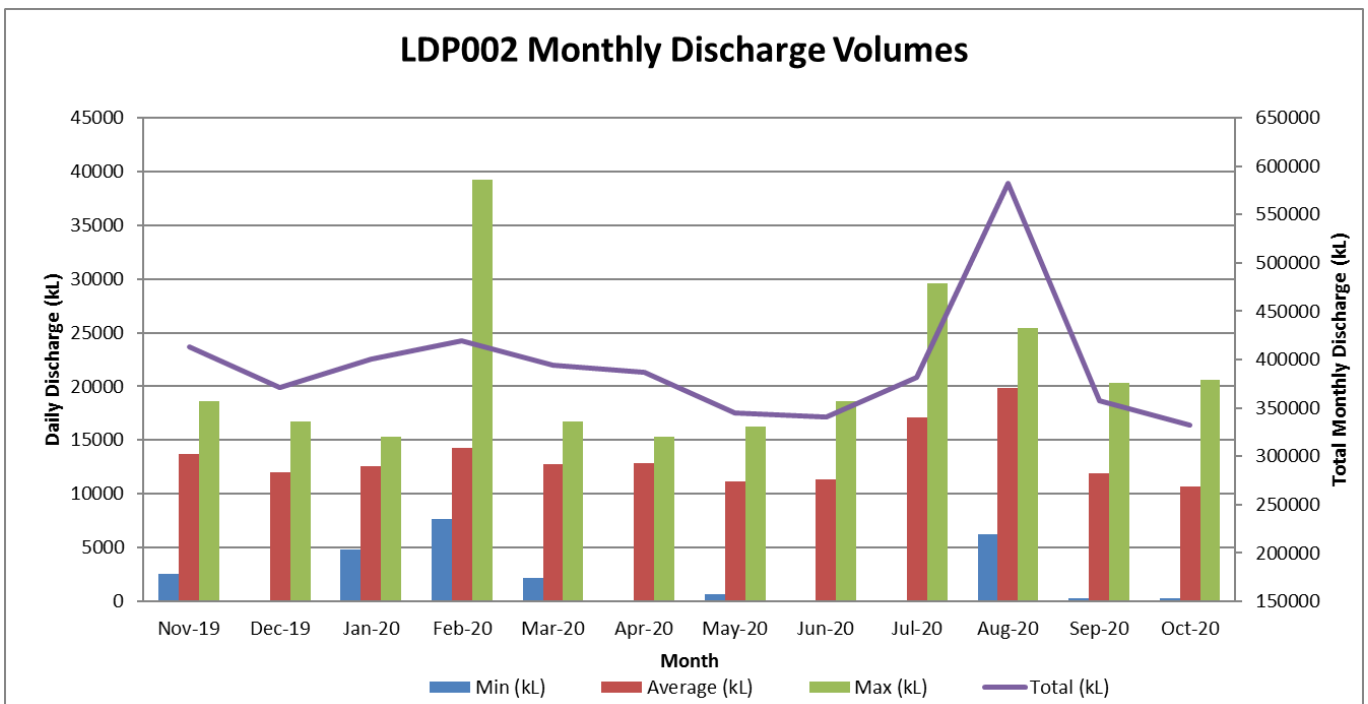


Figure 2. LDP2 Monthly Discharge Volumes

AIR QUALITY MONITORING

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

Depositional Dust

Depositional dust (g/m²/mth) results (insoluble solids) for the period are shown in Table 4. The average year to date is below the maximum allowable annual average dust level of 4g/m²/mth pursuant to Schedule 3 of Development Consent DA504-00.

Table 5 – Depositional Dust

Date Sampled	3/9/2020 – 2/10/2020	Date Obtained	30/10/2020	
Dust Gauge	Unit of measure	Days Exposed	Insoluble Solids	Annual Average Limit
Point 5 (DG1)	g/m ² /month	28	0.9	4
Point 6 (DG2)	g/m ² /month	28	0.5	4
Point 7 (DG3)	g/m ² /month	28	1.2	4

*The data shown is the results of the previous month's exposure as noted in the date range which allows for analysis of the sample collection and alignment with monthly EPL website reporting. Figure 3 and 4 depict the monthly dust gauge results and the rolling 12 month average depositional dust gauge.

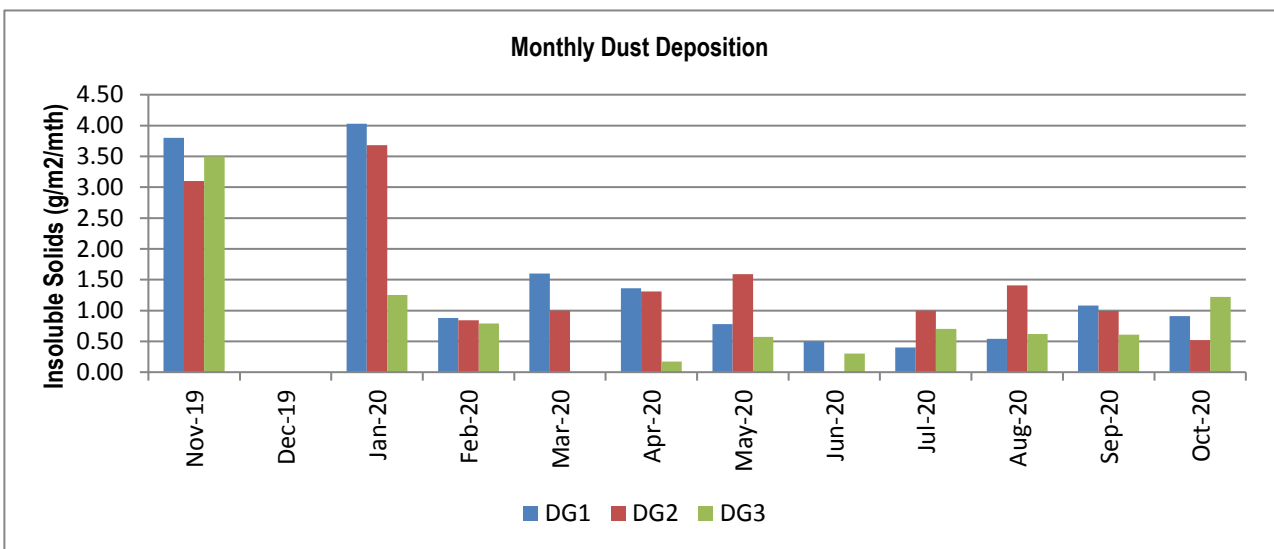


Figure 3. Monthly Dust Gauge Results

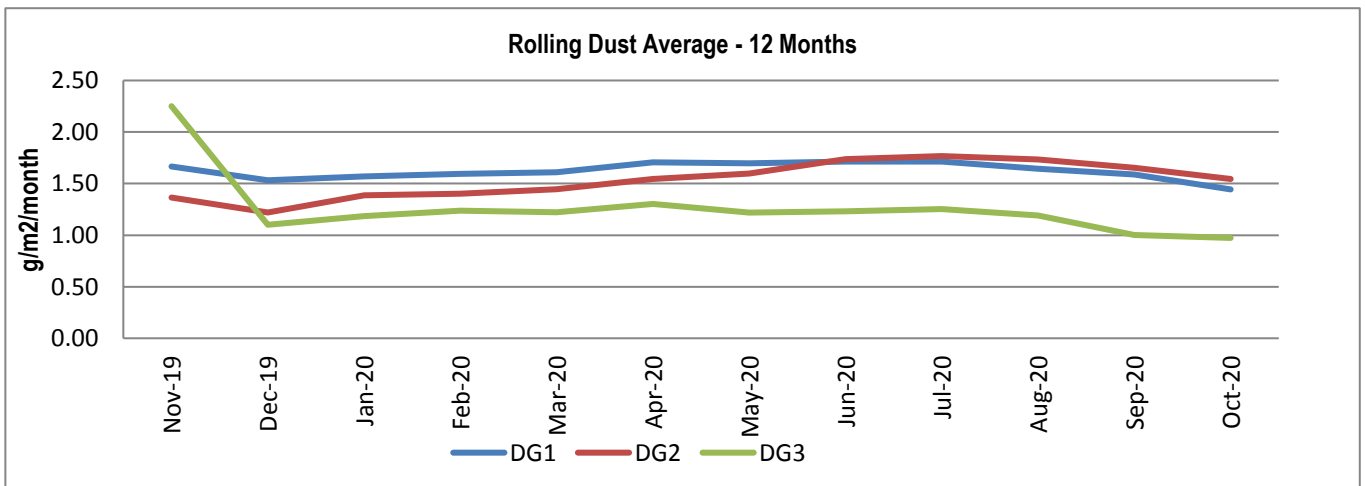


Figure 4. Rolling 12 Month Dust Gauge Averages

COMPLAINTS

No complaints were received for the reporting period.

A summary of complaints received at Clarence Colliery for 2020 is shown in Table 6 below.

Table 6. Complaints received at Clarence Colliery 2020

Month	Air/Dust	Water	Noise	Other
Jan 2020	Nil	Nil	Nil	Nil
Feb 2020	Nil	Nil	Nil	Nil
Mar 2020	Nil	Nil	Nil	Nil
Apr 2020	Nil	Nil	Nil	Nil
May 2020	Nil	Nil	Nil	Nil
Jun 2020	Nil	Nil	Nil	Nil
Jul 2020	Nil	Nil	Nil	Nil
Aug 2020	Nil	Nil	Nil	Nil
Sep 2020	Nil	Nil	Nil	Nil
Oct 2020	Nil	Nil	Nil	Nil

WEATHER

A summary of rainfall and temperature data recorded at the onsite meteorological monitoring station (EPL Point 8) during the year up to the reporting period is shown in Table 7.

Table 7 - 12 Month Meteorological Data for Clarence Colliery

Month	Total Rainfall (mm)	Minimum Temperature (°C) at 2m	Maximum Temperature (°C) at 2m
Nov 2019	27.0	3.17	34.27
Dec 2019	2.0	6.36	36.96
Jan 2020	53.2	10.84	38.23
Feb 2020	307.8	9.39	36.08
Mar 2020	137.0	7.40	30.04
Apr 2020	88.0	4.03	25.06
May 2020	34.8	0.70	18.58
Jun 2020	35.8	0.00	15.55
Jul 2020	100.2	0.06	14.87
Aug 2020	104.6	0.00	19.65
Sep 2020	58.4	0.57	23.22
Oct 2019	100.8	0.57	26.28

Figures 5, 6 and 7 depict 12 months of weather data recorded at Clarence Colliery including Rainfall, Maximum and Minimum temperatures and, Wind speed and direction, and relative humidity for the reporting period.

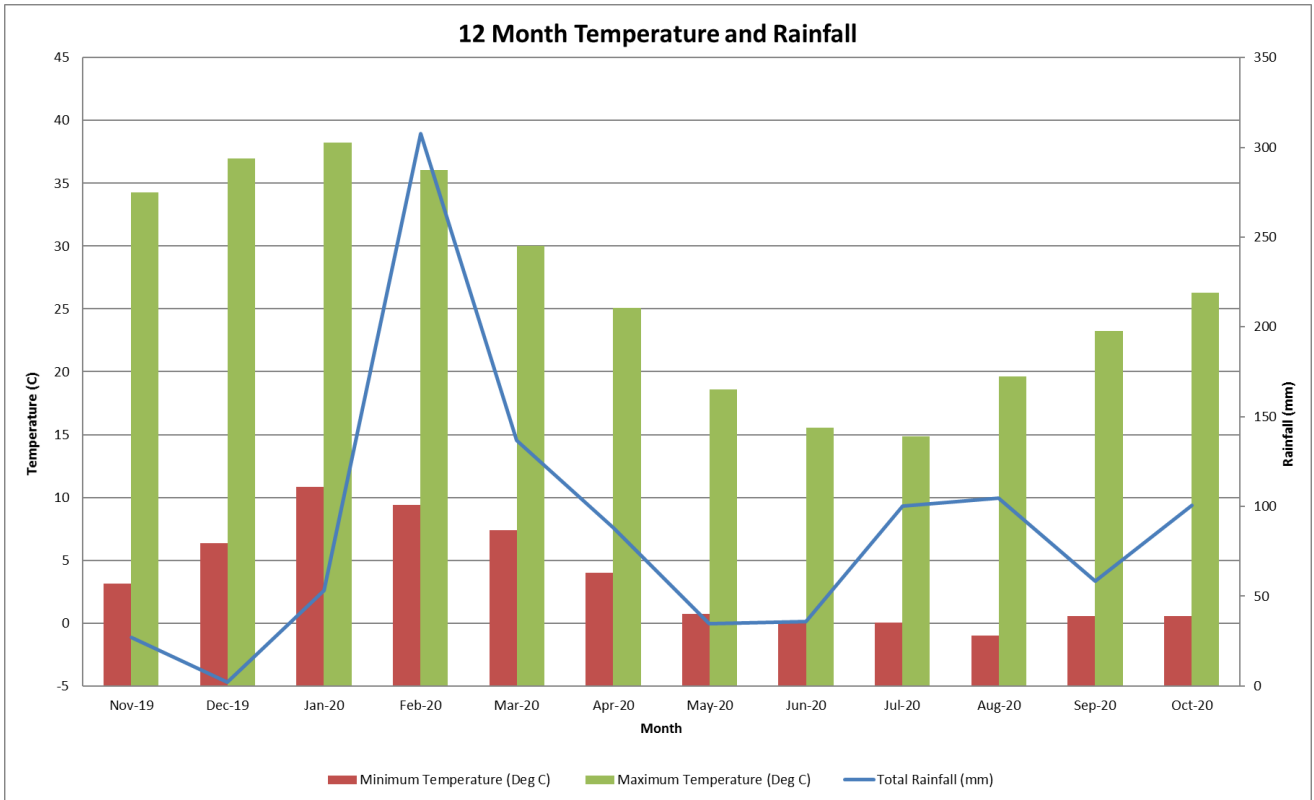


Figure 5. 12 Month Temperature and Rainfall Data

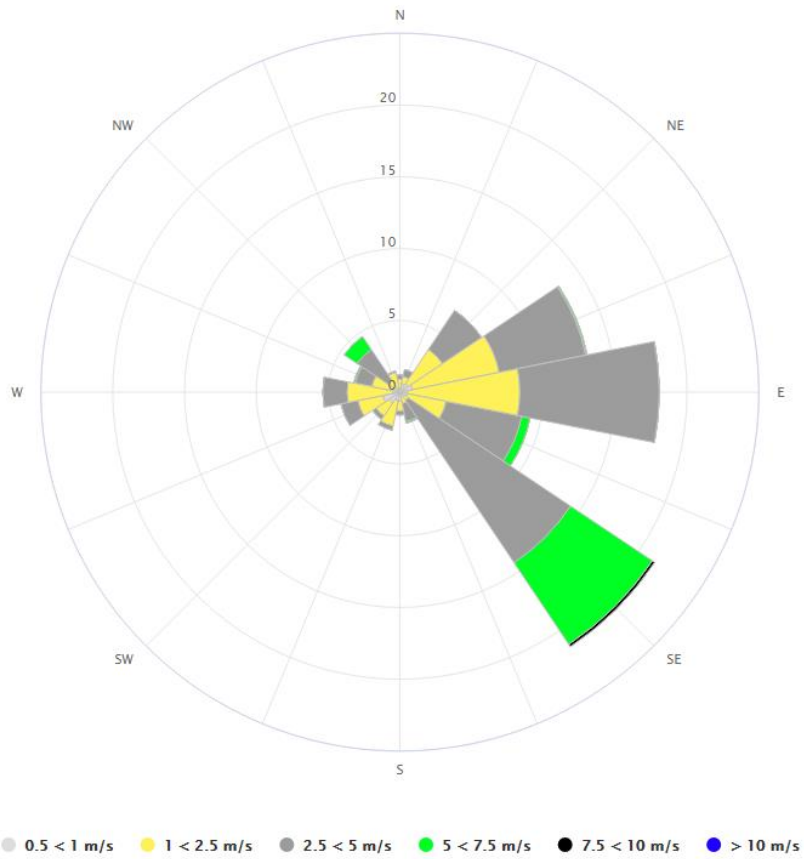


Figure 6. Windrose for Clarence Colliery October 2020

Humidity & Barometric Pressure

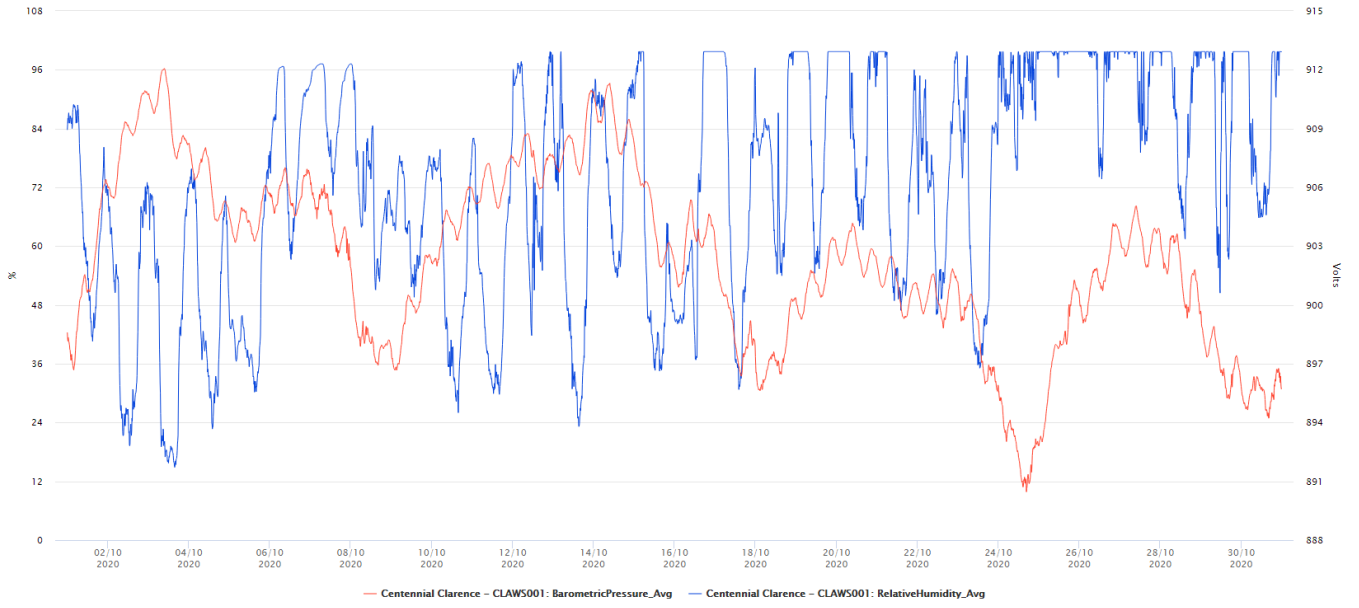


Figure 7. Relative Humidity October 2020

APPENDIX 1
EPL 726 MONITORING LOCATIONS

Clarence Colliery Pit Top Monitoring Locations

