Centennial Coal

Charbon Coal

Environmental Monitoring Data

July 2018

Centennial Coal
Environment Matters

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INTRODUCTION

This monitoring report is to satisfy the requirements under the *Protection of the Environment Legislation Amendment Act 2011 (POELA Act)* to publish or make pollution monitoring data available to members of the public.

This report summarises environmental monitoring results for Charbon Colliery for the period of July 2018.

Table 1 – Colliery Information

Colliery Information	
Premises Details	Charbon Colliery
Address	Charbon Rd Charbon NSW 2848
Licensee	Charbon Coal Pty Ltd
EPL no	528
EPL location	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32415&SYSUID=1&LICID=528

SURFACE WATER QUALITY

The following parameters are monitored at Licenced Discharge Points (LDP) LDP002, LDP003, LDP004, LDP005 and LDP006 daily during discharge in accordance with the requirements of Environmental Protection Licence Number 528 (EPL 528).

Table 2 shows a summary of the monitoring results.

Table 2 –Daily Sampling Results

Data Published:	August 2018	**Licensee:**	Charbon Coal Pty Ltd			
Data Sampled:	July 2018	**Address:**	Charbon Rd Charbon NSW 2848			
Data Obtained:	01/08/2018	**EPL No.**	528			
LDP002						
Date	pH	EC (µS/cm)	Turbidity (NTU)	TSS (mg/L)	Oil & Grease (mg/L)	Compliant
Limit	6.5 - 8.5	Monitor Only	50	50	10	
No Discharge						
LDP003						
Date	pH	EC (µS/cm)	Turbidity (NTU)	TSS (mg/L)	Oil & Grease (mg/L)	Compliant
Limit	6.5 - 8.5	Monitor Only	50	50	10	
No Discharge						

LDP004						
Date	pH	EC (µS/cm)	Turbidity (NTU)	TSS (mg/L)	Oil & Grease (mg/L)	Compliant
Limit	6.5 - 8.5	Monitor Only	50	50	10	
No Discharge						
LDP005						
Date	pH	EC (µS/cm)	Turbidity (NTU)	TSS (mg/L)	Oil & Grease (mg/L)	Compliant
Limit	6.5 - 8.5	Monitor Only	50	50	10	
No Discharge						
LDP006						
Date	pH	EC (µS/cm)	Turbidity (NTU)	TSS (mg/L)	Oil & Grease (mg/L)	Compliant
Limit	6.5 - 8.5	Monitor Only	50	50	10	
No Discharge						

There were no discharges of water from licensed discharge points during the reporting period.

Figures 1 - 5 below show a summary of the surface water monitoring results from January to December 2018 for LDP002, LDP003, LDP004, LDP005 and LDP006.

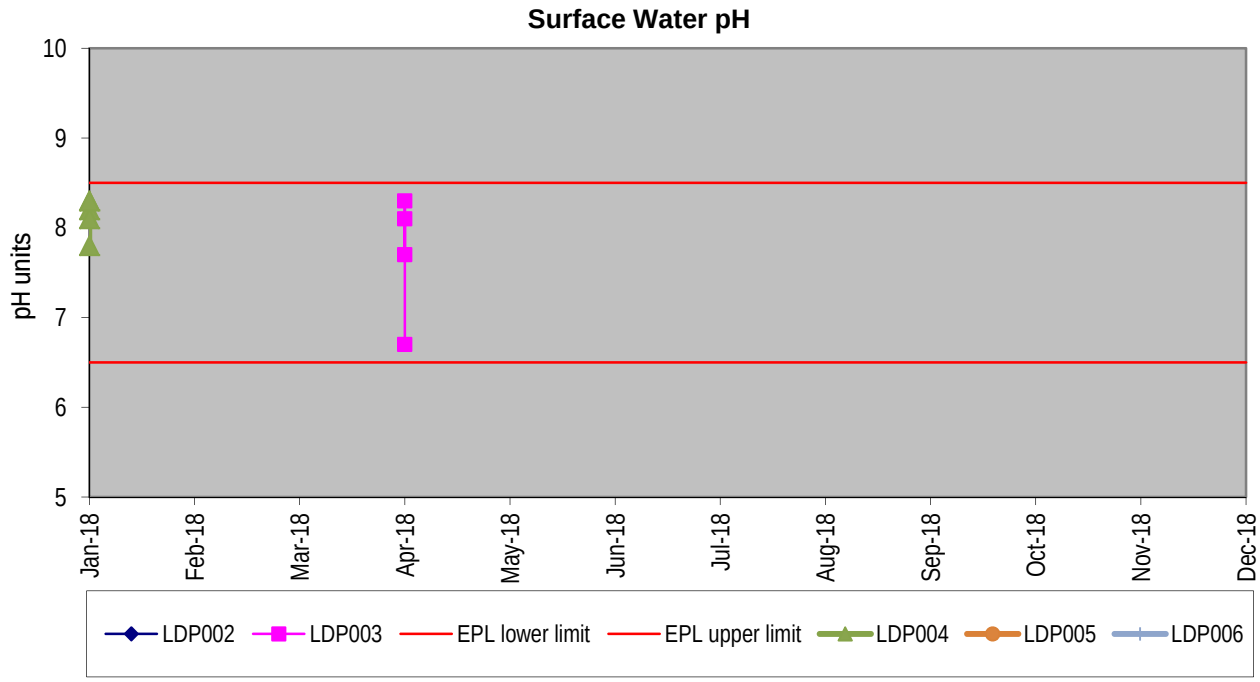

Figure 1 – Surface Water pH Results

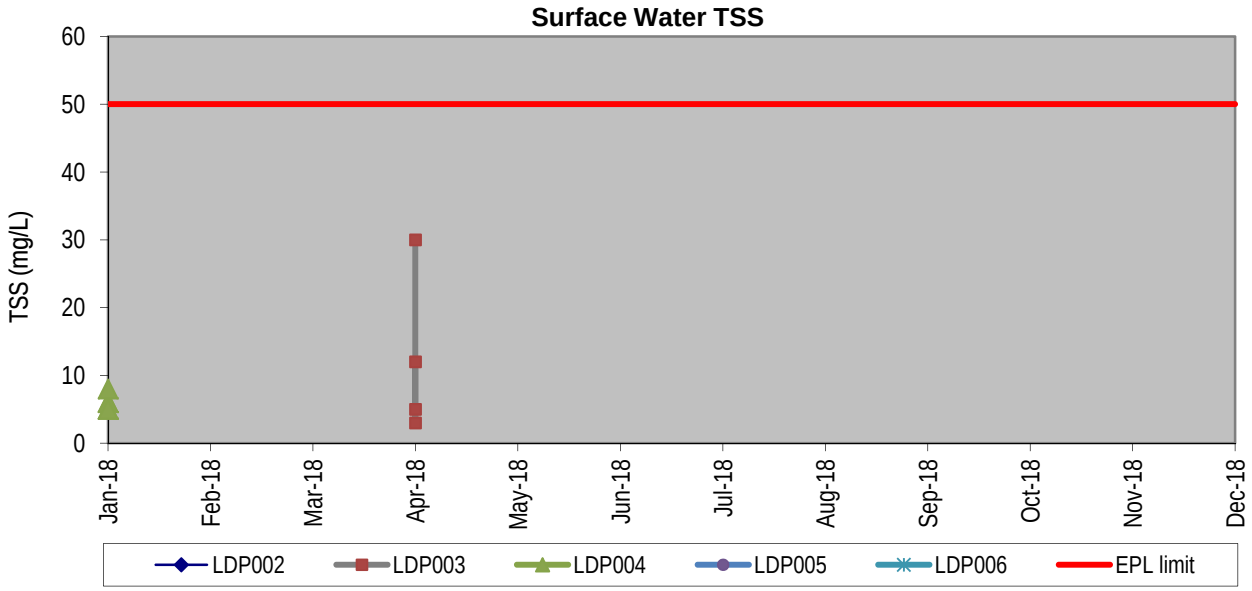

Figure 2 – Surface Water Total Suspended Solids (TSS) Results

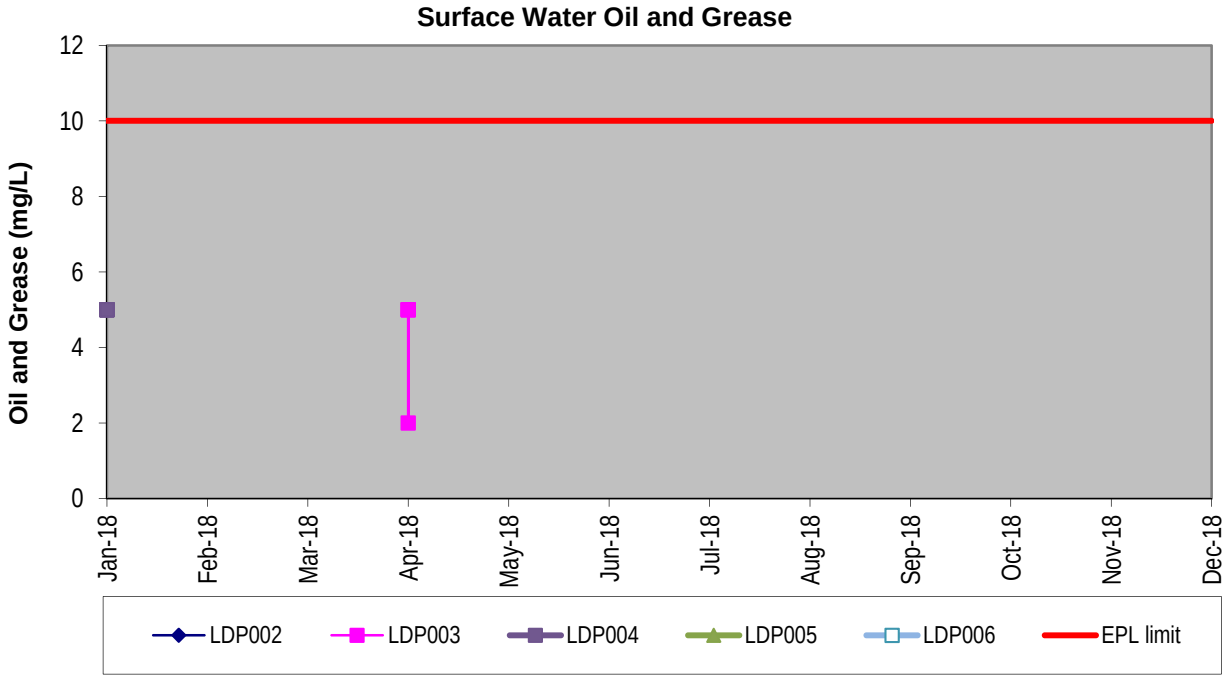

Figure 3 – Surface Water Oil & Grease Results

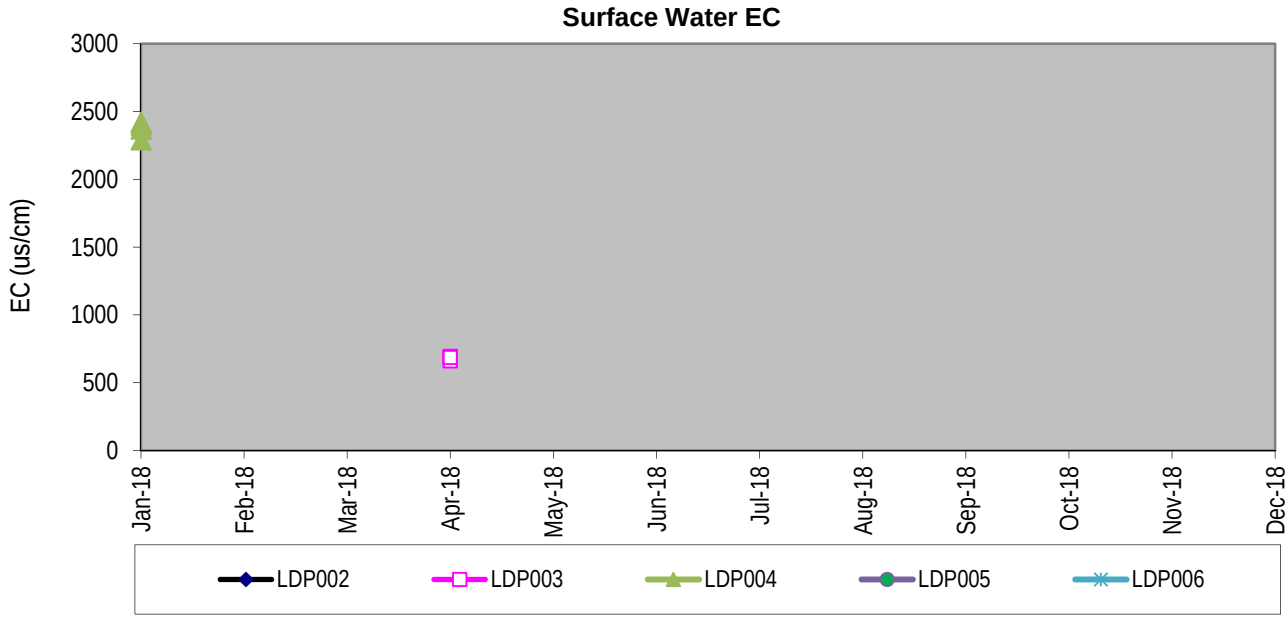

Figure 4 – Surface Water Electrical Conductivity (EC) Results

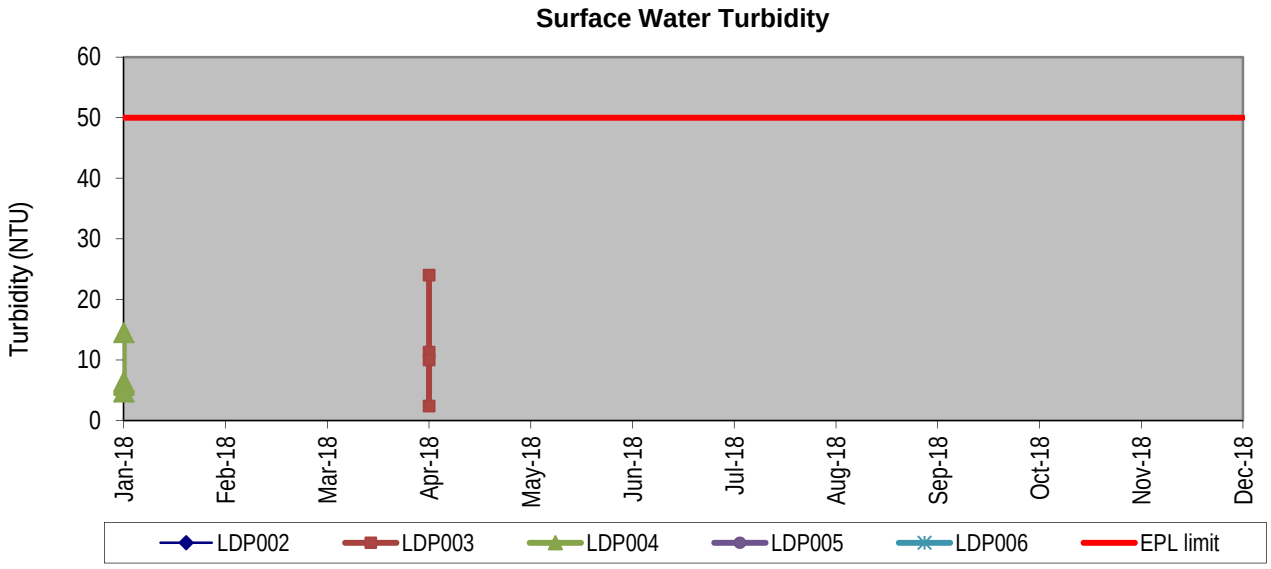

Figure 5 – Surface Water Turbidity Results

WATER VOLUME

The volume of water discharged off site is measured through licensed discharge points (LDPs). EPL 528 sets limits on the maximum volume of water to be discharged for a given period. There were no discharges of water from licensed discharge points during the reporting period.

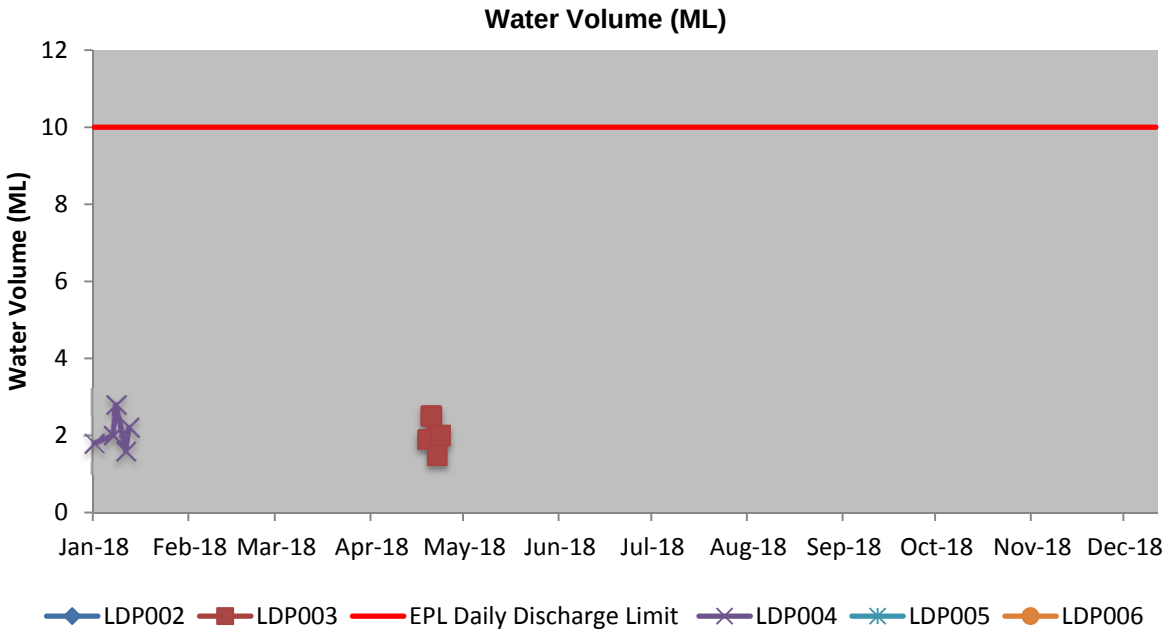

Figure 6 – Discharged Water Volume (ML) 2018

AIR QUALITY MONITORING

The air quality monitoring results for the reporting period are summarised in Table 3, Table 4 and Table 5 below.

Depositional Dust

Depositional dust (g/m^2/mth) results (insoluble solids) for the reporting period are shown in Table 3. Monthly depositional dust (g/m^2/mth) results for January to December 2018 are shown graphically in Figure 7.

Table 3 – Depositional Dust

Colliery Name	Dust Gauge No	Date Sampled	Insoluble Solids[1,2]
Charbon	DM - South	07/06/2018 - 09/07/2018	0.3
Charbon	DM - West	07/06/2018 - 09/07/2018	0.2
Charbon	Nioka	07/06/2018 - 09/07/2018	0.2
Charbon	Pit Top	07/06/2018 - 09/07/2018	0.3
Charbon	DM – C[3]	07/06/2018 - 09/07/2018	0.2
Charbon	DM – HL[4]	07/06/2018 - 09/07/2018	-

DM – Dust Gauge

1. Annual Average Limit (4 g/m^2/mth)
2. Maximum increase in deposited dust level (2 g/m^2/mth) (annual average limit)
3. Negotiated agreements with the owners of land where these DDGs are located were entered into in 2013, which included removing limits for depositional dust.
4. No access to dust gauge. Landowners could not be reached.

Depositional dust gauge (DDG) monitoring data indicated that dust deposition results for July 2018 ranged from 0.2 g/m^2/mth to 0.3 g/m^2/mth. EPL 528 does not include a license limit for depositional dust; however, a maximum total deposited dust level of 4 g/m^2/mth and a maximum increase in deposited dust level (2 g/m^2/mth) is set by conditions included in Charbon's Project Approval. The depositional dust levels complied with the limits prescribed in the Project Approval during the reporting period.

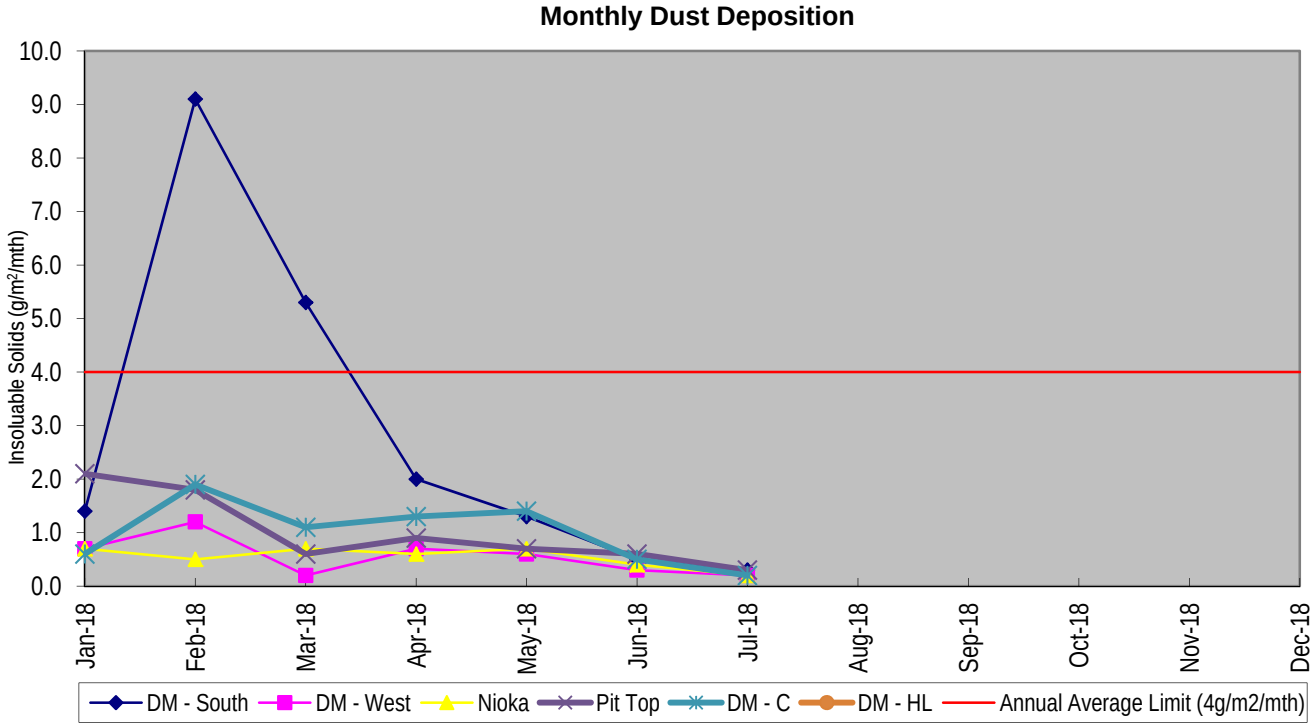

Figure 7 – Monthly Depositional Dust 2018

High Volume Air Sampling (HVAS)

High volume air samplers monitored Particulate Matter (PM) concentrations (less than 10 micrometres in size) and Total Suspended Particulates (TSP) during the reporting period. A summary of monitoring results is provided in Table 4 and Table 5 and shown graphically in Figure 8 and Figure 9, below.

Table 4 – HVAS TSP Nioka

Data Published:	August 2018				Licensee:		Charbon Coal Pty Ltd				
Data Sampled:	January – July 2018				Address:		Charbon Rd Charbon NSW 2848				
Data Obtained:	01/08/2018				EPL No.		528				
Date	01/01/2018	07/01/2018	13/01/2018	19/01/2018	25/01/2018	31/01/2018	06/02/2018	12/02/2018	18/02/2018	24/02/2018	02/03/2018
TSP (ug/m³) 24 hr concentration	*	36.6	35.8	26.6	28.6	16.9	16.4	34.2	57.9	21.1	20.2
Annual Average TSP Limit (90µg/m³)	90	90	90	90	90	90	90	90	90	90	90
Date	08/03/2018	14/03/2018	20/03/2018	26/03/2018	01/04/2018	07/04/2018	13/04/2018	19/04/2018	25/04/2018	01/05/2018	07/05/2018
TSP (ug/m³) 24 hr concentration	11.3	25.5	54.9	18.2	29.7	29.4	45.8	17.8	31.1	10.2	21.4
Annual Average TSP Limit (90µg/m³)	90	90	90	90	90	90	90	90	90	90	90

Date	13/05/2018	19/05/2018	25/05/2018	31/05/2018	06/06/2018	12/06/2018	18/06/2018	24/06/2018	30/06/2018	06/07/2018	12/07/2018
TSP (ug/m^3) 24 hr concentration	7.5	12.8	18.2	8.4	3.1	10.8	4.6	6.5	7.5	14.8	13.5
Annual Average TSP Limit (90µg/m^3)	90	90	90	90	90	90	90	90	90	90	90
Date	18/07/2018	24/07/2018									
TSP (ug/m^3) 24 hr concentration	140	29.3									
Annual Average TSP Limit (90µg/m^3)	90	90									

*Power supply to units is intermittent and run times and flow could not be determined.

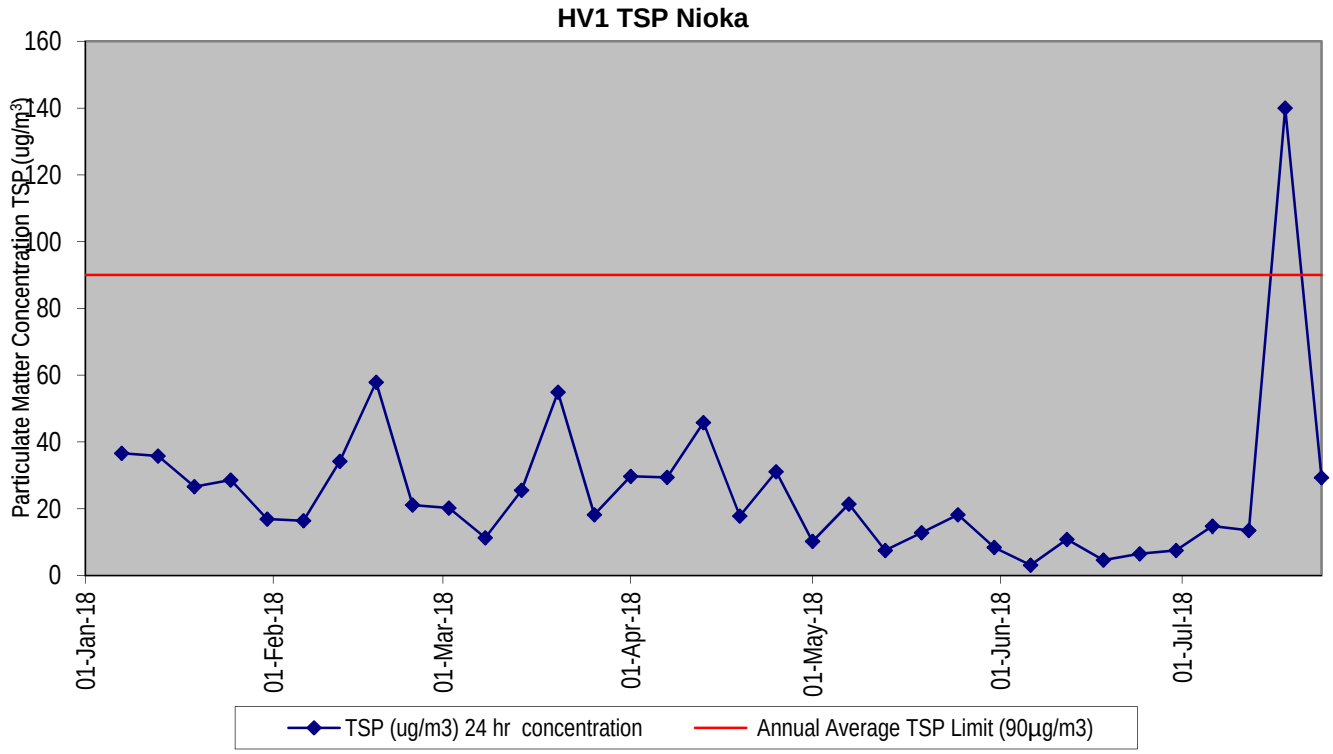

Figure 8 – HVAS TSP Nioka

Table 5 – HVAS PM10 Nioka

Data Published:	August 2018				Licensee:		Charbon Coal Pty Ltd				
Data Sampled:	January – July 2018				Address:		Charbon Rd Charbon NSW 2848				
Data Obtained:	01/08/2018				EPL No.		528				
Date	01/01/2018	07/01/2018	13/01/2018	19/01/2018	25/01/2018	31/01/2018	06/02/2018	12/02/2018	18/02/2018	24/02/2018	02/03/2018
PM10 (ug/m^3) 24 hr concentration	13.7	17.0	18.9	16.6	22.6	10.8	10.1	20.2	40.2	20.6	14.3
24 hr PM10 limit	50	50	50	50	50	50	50	50	50	50	50
12 month average PM10 limit	30	30	30	30	30	30	30	30	30	30	30
Date	08/03/2018	14/03/2018	20/03/2018	26/03/2018	01/04/2018	07/04/2018	13/04/2018	19/04/2018	25/04/2018	01/05/2018	07/05/2018
PM10 (ug/m^3) 24 hr concentration	7.4	15.4	28.2	11.6	17.5	20.6	19.3	10.7	23.8	7.6	10.3
24 hr PM10 limit	50	50	50	50	50	50	50	50	50	50	50
12 month average PM10 limit	30	30	30	30	30	30	30	30	30	30	30
Date	13/05/2018	19/05/2018	25/05/2018	31/05/2018	06/06/2018	12/06/2018	18/06/2018	24/06/2018	30/06/2018	06/07/2018	12/07/2018
PM10 (ug/m^3) 24 hr concentration	4.8	5.7	13.7	5.2	2.7	4.9	4.2	4.2	6.1	6.7	9.6
24 hr PM10 limit	50	50	50	50	50	50	50	50	50	50	50
12 month average PM10 limit	30	30	30	30	30	30	30	30	30	30	30
Date	18/07/2018	24/07/2018									
PM10 (ug/m^3) 24 hr concentration	68.6	14.1									
24 hr PM10 limit	50	50									
12 month average PM10 limit	30	30									

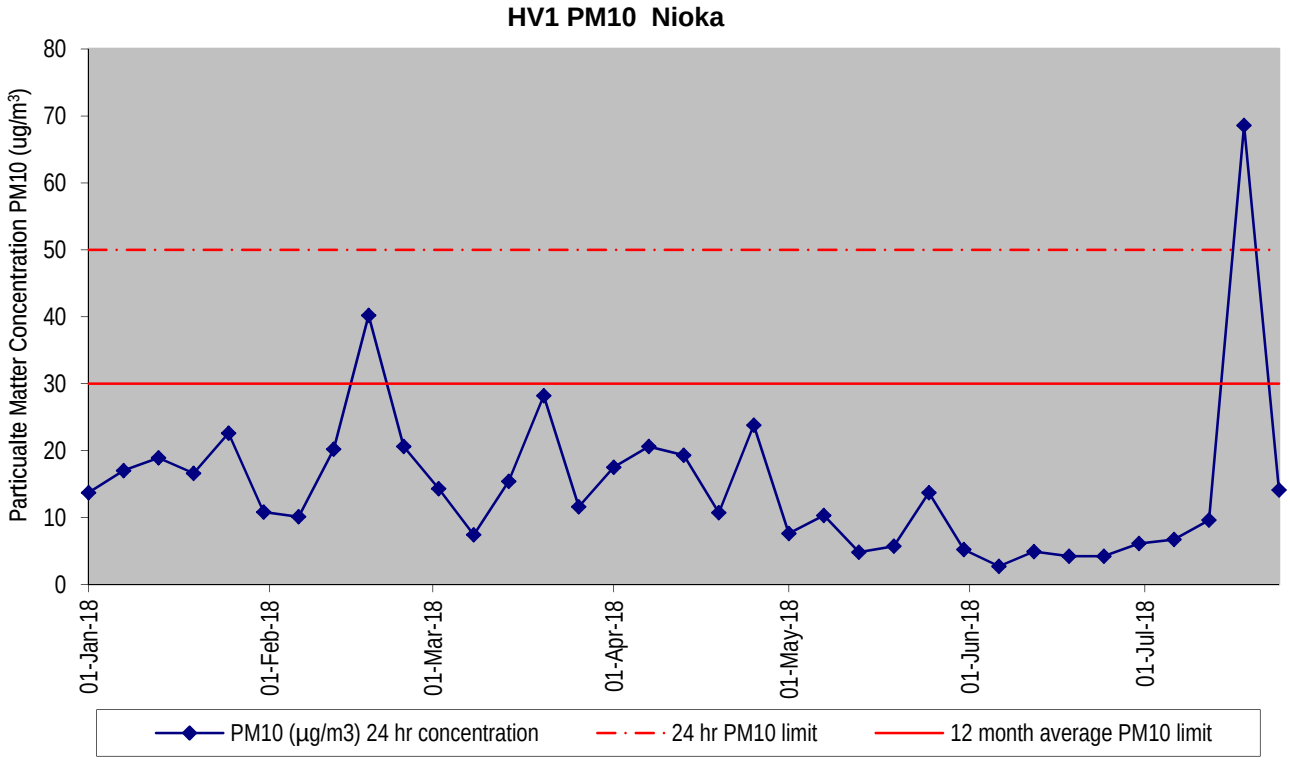

Figure 9 – HVAS PM10 Nioka

In accordance with Condition 19 of Schedule 3 in Project Approval 08_0211, TSP have an annual average limit of 90 µg/m^3, whilst particulate matter less than PM_{10} have a 24 hour limit of 50 µg/m^3 and an annual average limit of 30 µg/m^3. Although a result of 140 µg/m^3 for TSP was recorded on the 18 July 2018, the annual average TSP level of 25.5 µg/m^3 remained below the annual average limit for TSP during the reporting period. However, whilst a result of 68.6 µg/m^3 for PM_{10} was recorded on the 18 July 2018 and the annual average PM_{10} level of 15.1 µg/m^3 remained below the annual average limit for PM_{10} during the reporting period, the result did exceed the 24 hour limit of 50 µg/m^3 for PM_{10}. The monitoring result for the 18 July 2018 was recorded on a day when a regional dust event was reported in the media.

NOISE MONITORING

Noise monitoring was conducted quarterly to measure the ambient noise levels at the focus receptor locations (potentially worst affected) surrounding the mine and coal handling facilities in accordance with Condition 1 of Schedule 3 in Project Approval 08_0211 and the Charbon Coal Pty Ltd Noise Management Plan.

The noise surveys comprise of operator attended monitoring in 15 minute intervals coinciding with day, evening and night-time periods. Statistical indices recorded include LAmax, LA1, LA10, LA90 and LAeq. The results of noise monitoring conducted on the 4th and 5th of June 2018 can be seen in Tables 6, 7 and 8 and shown graphically in Figures 10, 11 and 12 below. All locations at all times were compliant with the conditions in the Project Approval. The location of the focus receptors is provided in Figure 14 in Appendix 1.

Table 6 – June Daytime Noise Monitoring

Data Published:	July 2018	**Licensee:**	Charbon Coal Pty Ltd
Data Sampled:	05/06/18	**Address:**	Charbon Rd Charbon NSW 2848
Data Obtained:	22/06/18	**EPL No.**	528

	Measured Noise Levels dB(A)							
Day	LA_{max}	LA_1	LA_{10}	LA_{90}	LA_{eq}	Estimated Mine Contribution LA_{eq}(15 minute)*	Description of Noise Emissions	Date/Start Time/Weather
Location A	61	56	43	26	42	IA	Birds = up to 52 dB Breeze = up to 30 dB Aircraft = up to 61 dB	05/06/2018 09:33 W = 3.6m/s Temp = 10ºC VTG = -1.6ºC/100m
Location L	61	51	32	22	37	NM	Birds = up to 61 dB Breeze = up to 26 dB Dogs = up to 30 dB Residential noise = less than 30 dB	05/06/2018 09:10 W = 2.9m/s Temp = 9ºC VTG = -1.8ºC/100m
Location P	48	41	36	29	33	NM	Breeze = up to 35 dB Birds = up to 31 dB Dogs = up to 48 dB Industrial continuum = up to 34 dB Cows = up to 40 dB	05/06/2018 08:44 W = 2.3m/s Temp = 9ºC VTG = -1.6ºC/100m
Noise consent limits with units of measure	35							

Day Noise Monitoring, Charbon Colliery, 05/06/2018

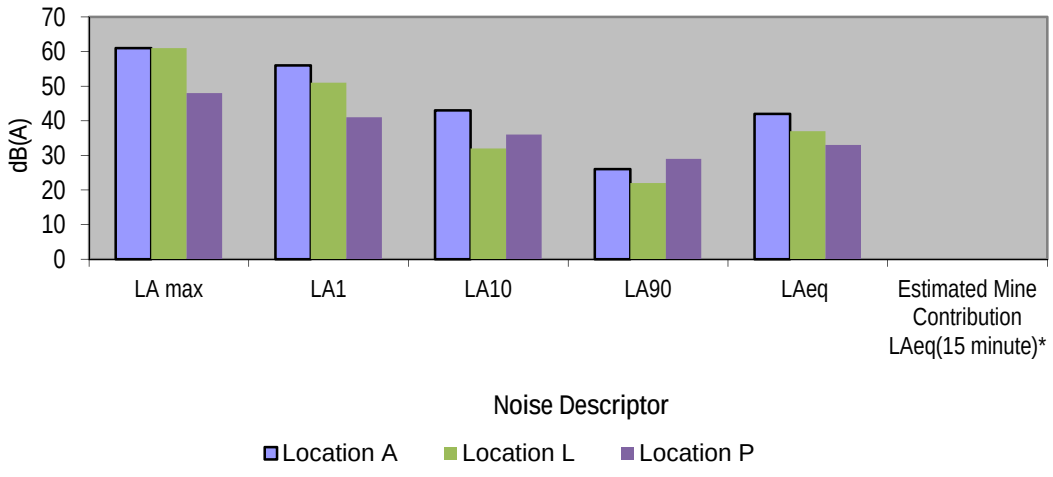

Figure 10 – June Daytime Noise Monitoring

Table 7 – June Evening Noise Monitoring

Data Published:	July 2018	**Licensee:**				Charbon Coal Pty Ltd		
Data Sampled:	04/06/18	**Address:**				Charbon Rd Charbon NSW 2848		
Data Obtained:	22/06/18	**EPL No.**				528		
Measured Noise Levels dB(A)								
Evening	LA_{max}	LA_1	LA_{10}	LA_{90}	LA_{eq}	Estimated Mine Contribution LA_{eq}(15 minute)*	Description of Noise Emissions	Date/Start Time/Weather
Location A	48	29	25	17	22	IA	Birds = up to 48 dB Frogs = up to 26 dB Water drops = 21 dB	04/06/2018 19:20 W = 1.7m/s Temp = 10ºC VTG = 3.0ºC/100m
Location L	66	61	56	25	50	IA	Industrial continuum = up to 20 dB Breeze = up to 30 dB Dogs = up to 66 dB	04/06/2018 18:49 W = 2.3m/s Temp = 10ºC VTG = 3.0ºC/100m
Location P	43	37	34	29	32	IA	Industrial continuum = up to 31 dB Breeze = up to 43 dB Road traffic = up to 39 dB Dogs = up to 37 dB	04/06/2018 18:20 W = 1.7m/s Temp = 12ºC VTG = 3.0ºC/100m
Noise consent limits with units of measure	35							

Evening Noise Monitoring, Charbon Colliery, 04/06/2018

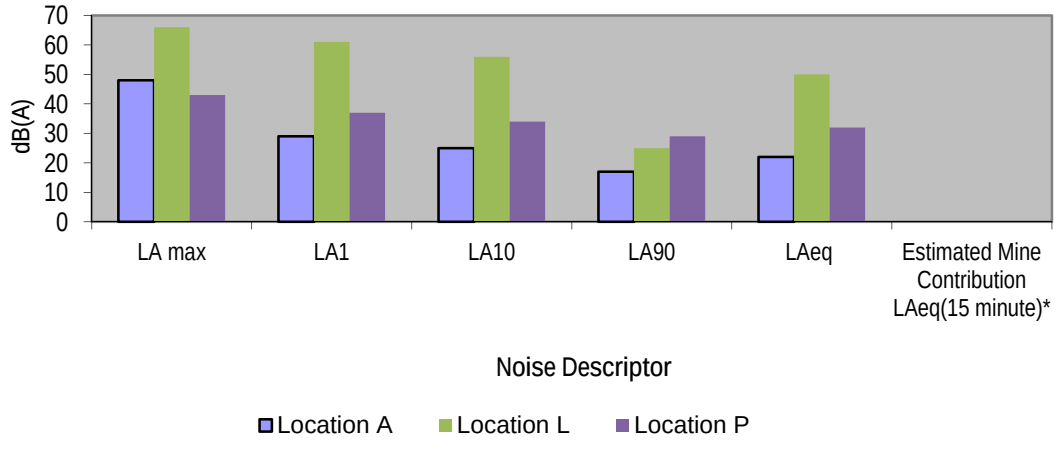

Figure 11 – June Evening Noise Monitoring

Table 8 – June Night Noise Monitoring

Data Published:	July 2018	**Licensee:**	Charbon Coal Pty Ltd
Data Sampled:	04/06/18	**Address:**	Charbon Rd Charbon NSW 2848
Data Obtained:	22/06/18	**EPL No.**	528

Measured Noise Levels dB(A)								
Night	LA_{max}	LA_1	LA_{10}	LA_{90}	LA_{eq}	Estimated Mine Contribution LA_{eq}(15 minute)*	Description of Noise Emissions	Date/Start Time/Weather
Location A	37	28	25	22	23	IA	Metallic expansion = up to 37 dB Breeze = up to 28 dB Birds = up to 26 dB	04/06/2018 22:52 W = 1.5m/s Temp = 8ºC VTG = 3.0ºC/100m
Location L	40	34	30	26	28	IA	Breeze = up to 40 dB Industrial continuum = up to 29 dB	04/06/2018 22:28 W = 1.7m/s Temp = 9ºC VTG = 3.0ºC/100m
Location P	56	37	34	29	32	IA	Industrial continuum = up to 37 dB Aircraft = 56 dB Breeze = up to 36 dB Road traffic = up to 37 dB	04/06/2018 22:00 W = 1.8m/s Temp = 9ºC VTG = 3.0ºC/100m
Noise consent limits with units of measure	35							

Night Noise Monitoring, Charbon Colliery, 04/06/2018

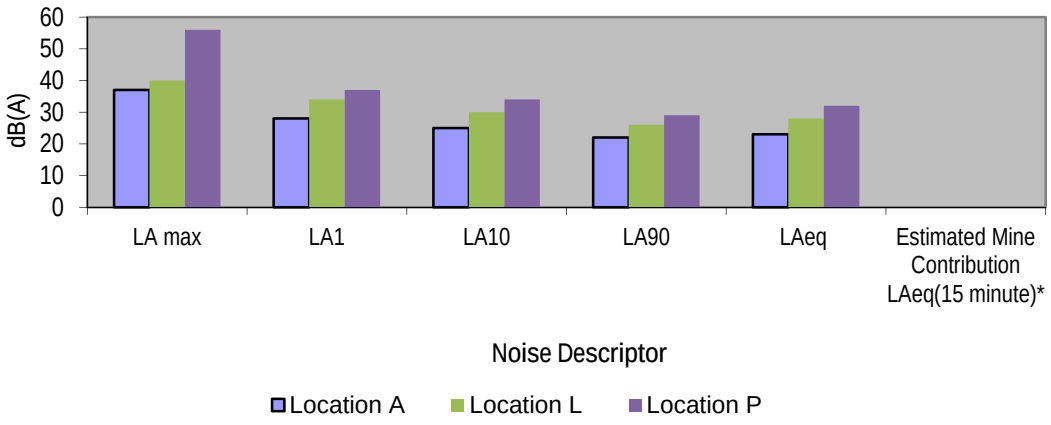

Figure 12 – June Night Noise Monitoring

COMPLAINTS REGISTER

There were no complaints made to Charbon Colliery during the July 2018 reporting period. Table 9 below, shows a summary of the complaints received by Charbon Colliery for 2018. Complaints are also listed on the Complaints Register on the Centennial Coal - Charbon website.

Table 9 – Complaints Register for Charbon Colliery 2018

Data Published:			August 2018			Licensee:			Charbon Coal Pty Ltd				
Data Sampled:			Jan – July 2018			Address:			Charbon Rd Charbon NSW 2848				
Data Obtained:			01/08/2018			EPL No.			528				
	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Annual Total
Air	0	0	0	0	0	0	0	-	-	-	-	-	0
Water	0	0	0	0	0	0	0	-	-	-	-	-	0
Noise	0	0	0	0	0	0	0	-	-	-	-	-	0
Flora & Fauna	0	0	0	0	0	0	0	-	-	-	-	-	0
Subsidence	0	0	0	0	0	0	0	-	-	-	-	-	0
Waste	0	0	0	0	0	0	0	-	-	-	-	-	0
Other	0	0	0	0	0	0	0	-	-	-	-	-	0
													0

WEATHER

A summary of temperature and rainfall data recorded at the on-site meteorological monitoring station during the reporting period is shown in Table 10 below, and graphically in Figure 13.

Table 10 – Meteorological Data for Charbon Colliery

Data Published:	August 2018	Licensee:	Charbon Coal Pty Ltd
Data Sampled:	Jan – July 2018	Address:	Charbon Rd Charbon NSW 2848
Data Obtained:	07/08/2018	EPL No.	528

Month	Total Rainfall (mm)	Minimum Temperature (°C)	Maximum Temperature (°C)	Average Temperature (°C)
Jan-18	39.6	9.7	37.7	22.8
Feb-18	64.8	10.3	35.9	20.6
Mar-18	27.6	5.0	32.9	19.0
Apr-18	24.2	6.8	30.4	16.9
May-18	15.6	0.1	22.2	10.6
Jun-18	41.4	-3.1	16.2	7.8
Jul-18	10.0	-4.8	18.1	7.5
Aug-18	-	-	-	-
Sep-18	-	-	-	-

Oct-18	-	-	-	-
Nov-18	-	-	-	-
Dec-18	-	-	-	-

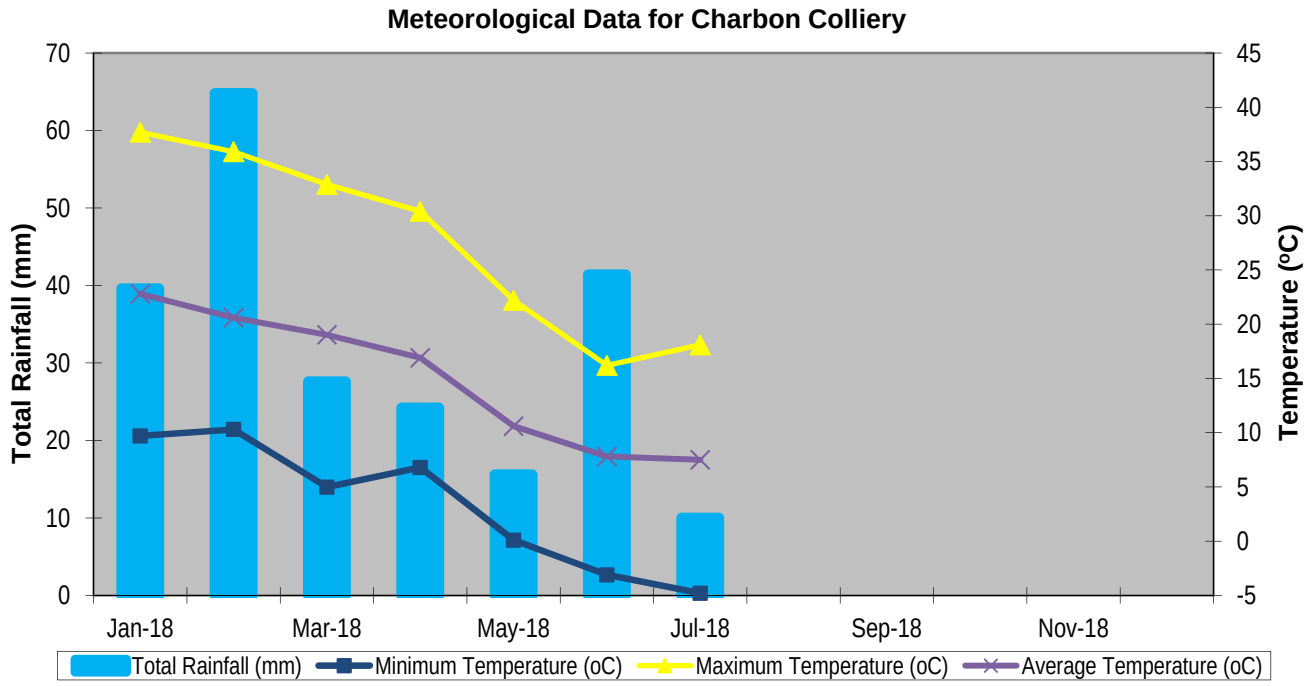

Figure 13 – Charbon Colliery Meteorological Data

WASTE

The volume of drilling mud and/or muddy waters from drilling operations received at Charbon Colliery is monitored weekly in accordance with the requirements of Environmental Protection Licence Number 528 (EPL 528). Table 11 shows a summary of the drilling mud received at Charbon Colliery from exploration boreholes drilled during 2018. There was no drilling mud received at Charbon Colliery during the reporting period.

Table 11 – Drilling Mud Received at Charbon Colliery

Data Published:	July 2018	**Licensee:**	Charbon Coal Pty Ltd
Data Sampled:	May 2018	**Address:**	Charbon Rd Charbon NSW 2848
Data Obtained:	30/05/2018	**EPL No.**	528
Date	**Volume of Drilling Mud**		**Volume Limit**
30/05/2018	4500L		6000L/week

APPENDIX 1: CHARBON COLLIERY SENSITIVE RECEIVER AND MONITORING LOCATIONS

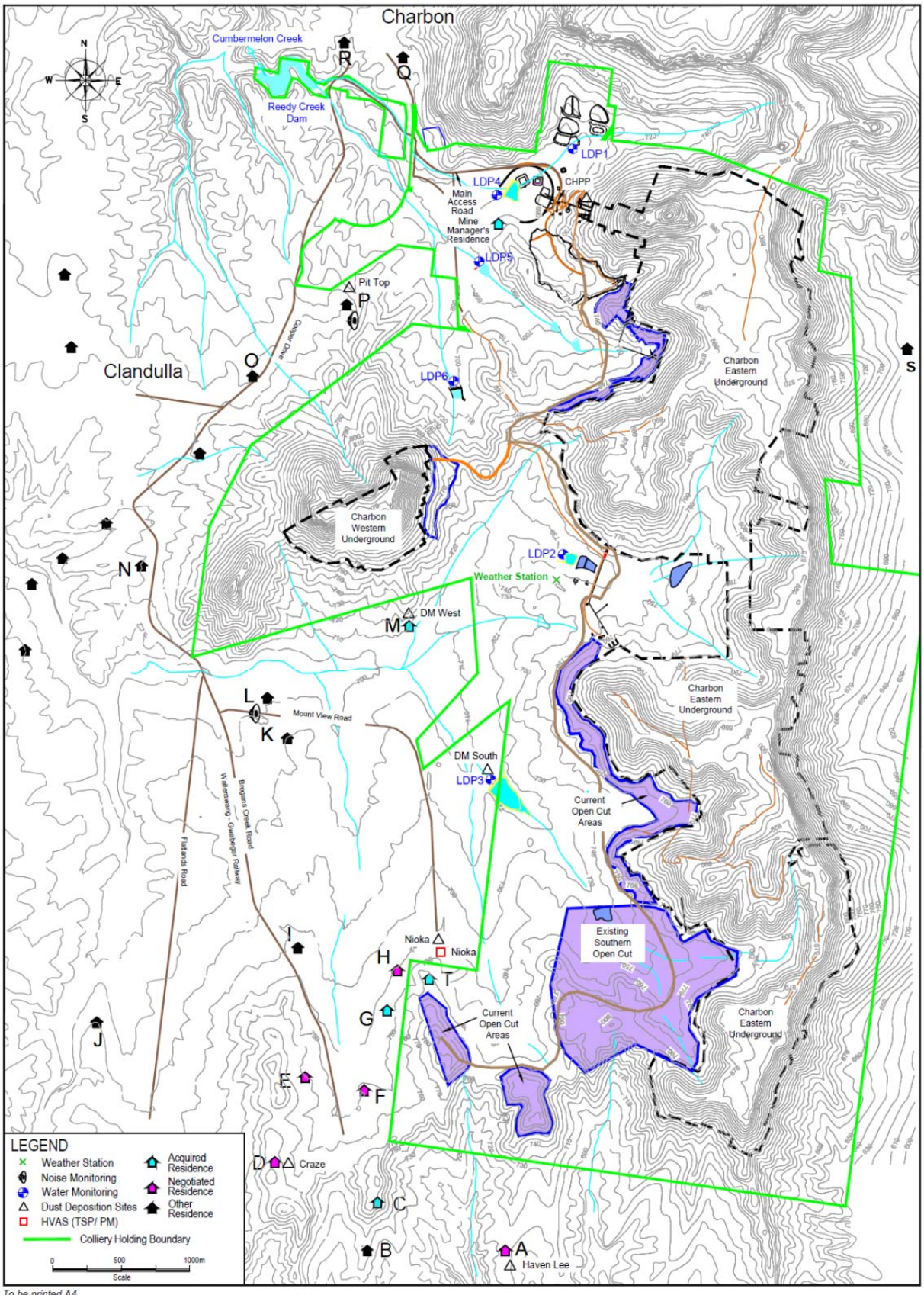

Figure 14 – Charbon Colliery Sensitive Receiver and Monitoring Locations

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