



**Centennial Coal**



**Charbon Coal**  
**Environmental Monitoring Data**

**September 2018**



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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 September 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	<a href="http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32415&amp;SYSUID=1&amp;LICID=528">http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32415&amp;SYSUID=1&amp;LICID=528</a>

## 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.

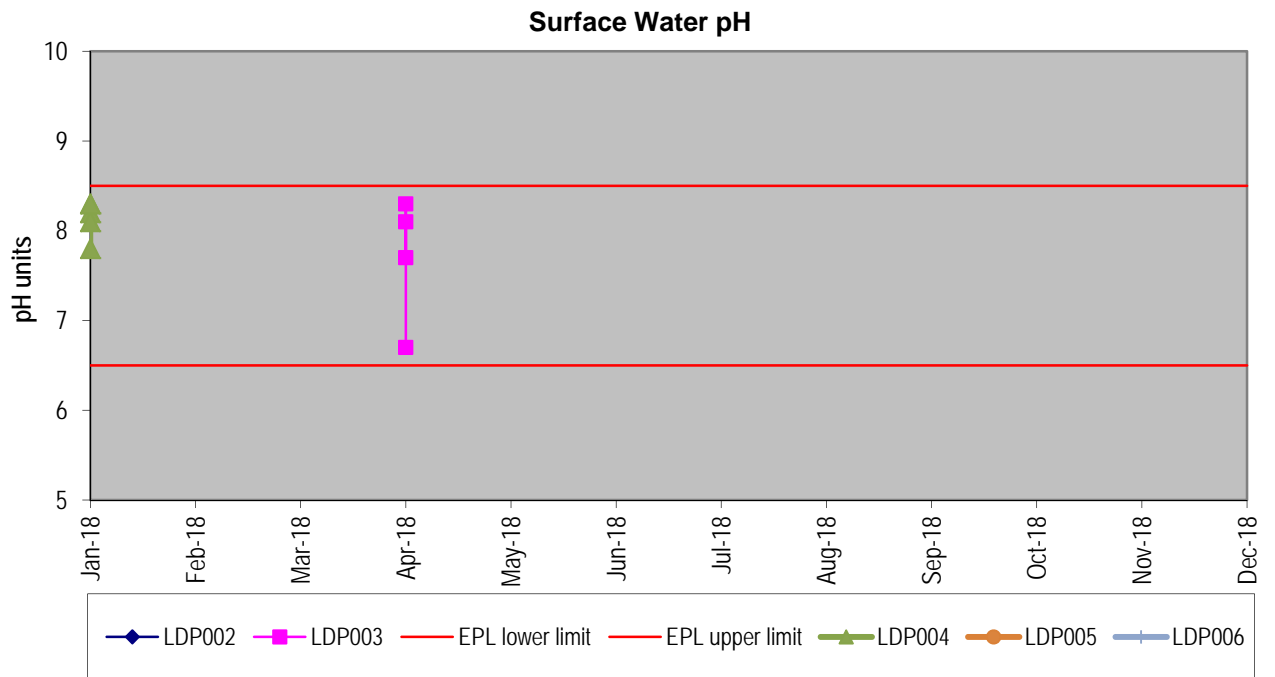
Table 2 – Daily Sampling Results

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

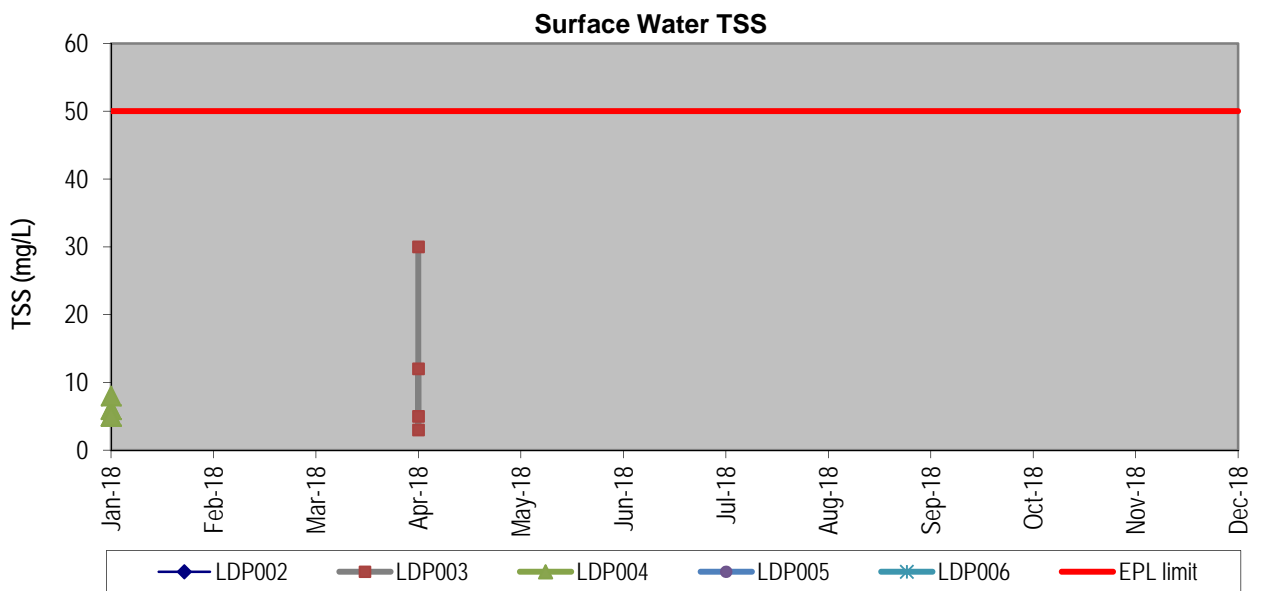
LDP004						
Date	pH	EC ( $\mu$ S/cm)	Turbidity (NTU)	TSS (mg/L)	Oil & Grease (mg/L)	Compliant
Limit	6.5 - 8.5	Monitor Only	50	50	10	
No Discharge						
LDP005						
Date	pH	EC ( $\mu$ S/cm)	Turbidity (NTU)	TSS (mg/L)	Oil & Grease (mg/L)	Compliant
Limit	6.5 - 8.5	Monitor Only	50	50	10	
No Discharge	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

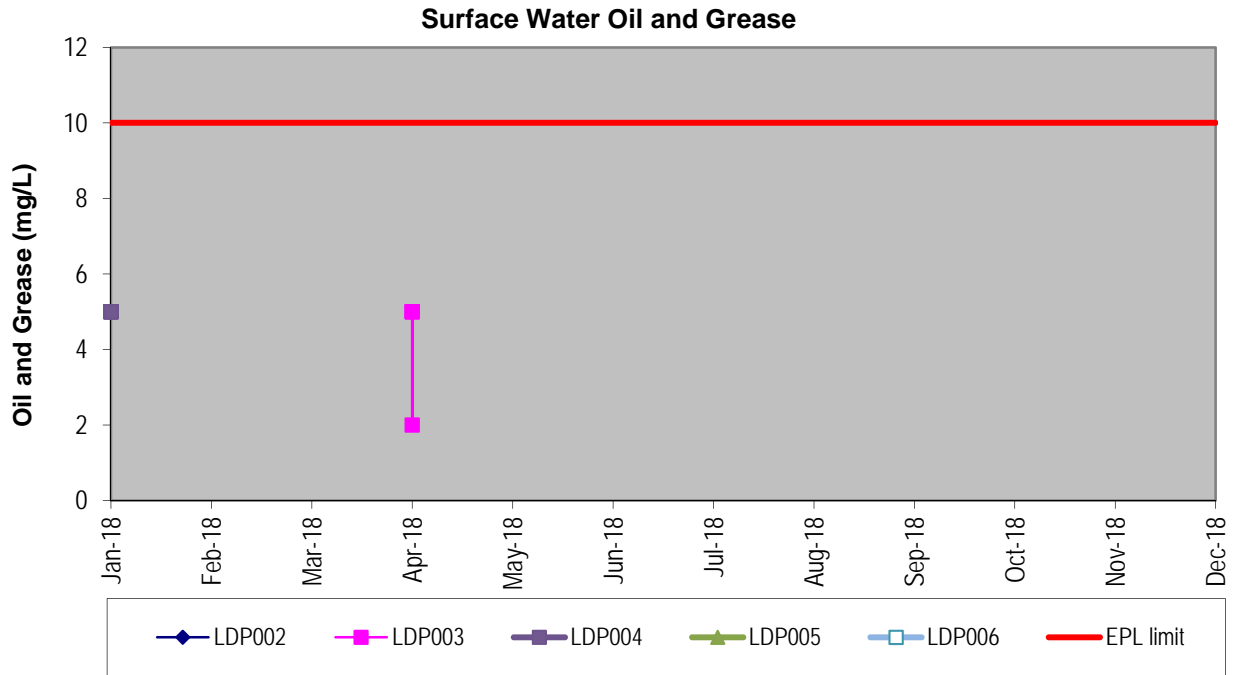
Figures 1 - 5 below show a summary of the surface water monitoring results from January to December 2018 for LDP002, LDP003, LDP004, LDP005 and LDP006.



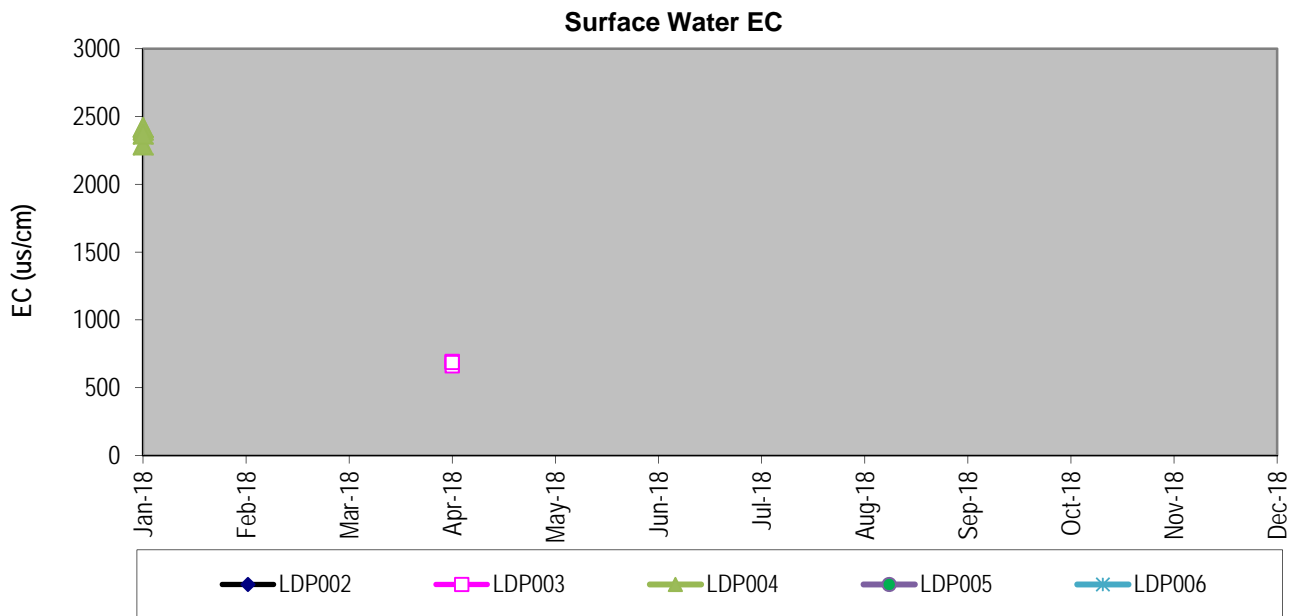
**Figure 1 – Surface Water pH Results**



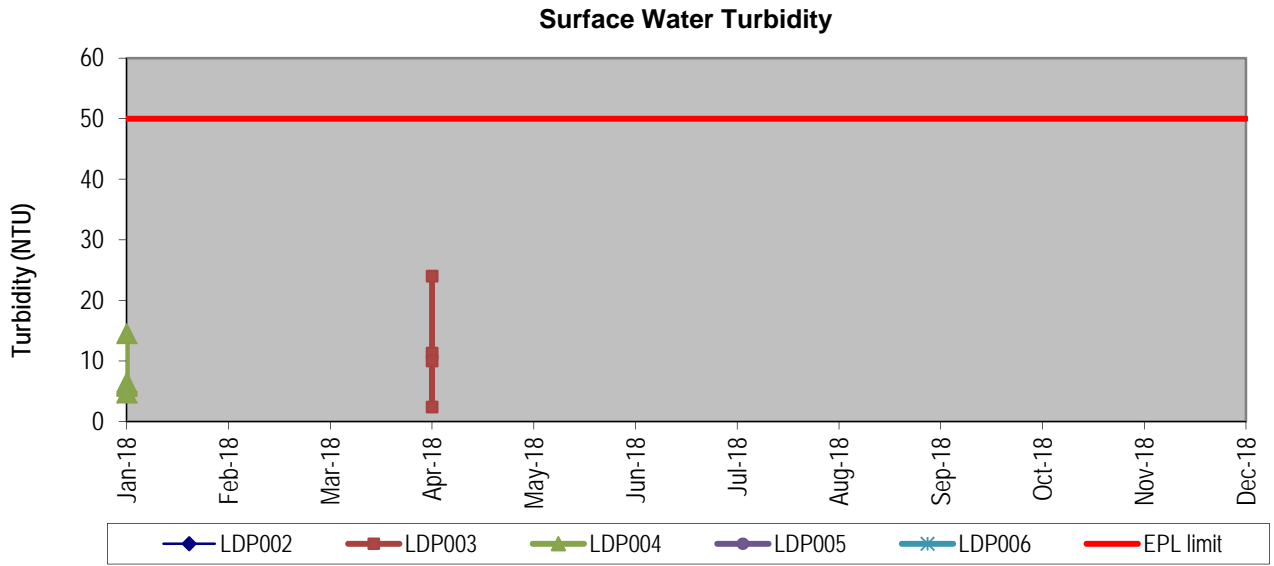
**Figure 2 – Surface Water Total Suspended Solids (TSS) Results**



**Figure 3 – Surface Water Oil & Grease Results**



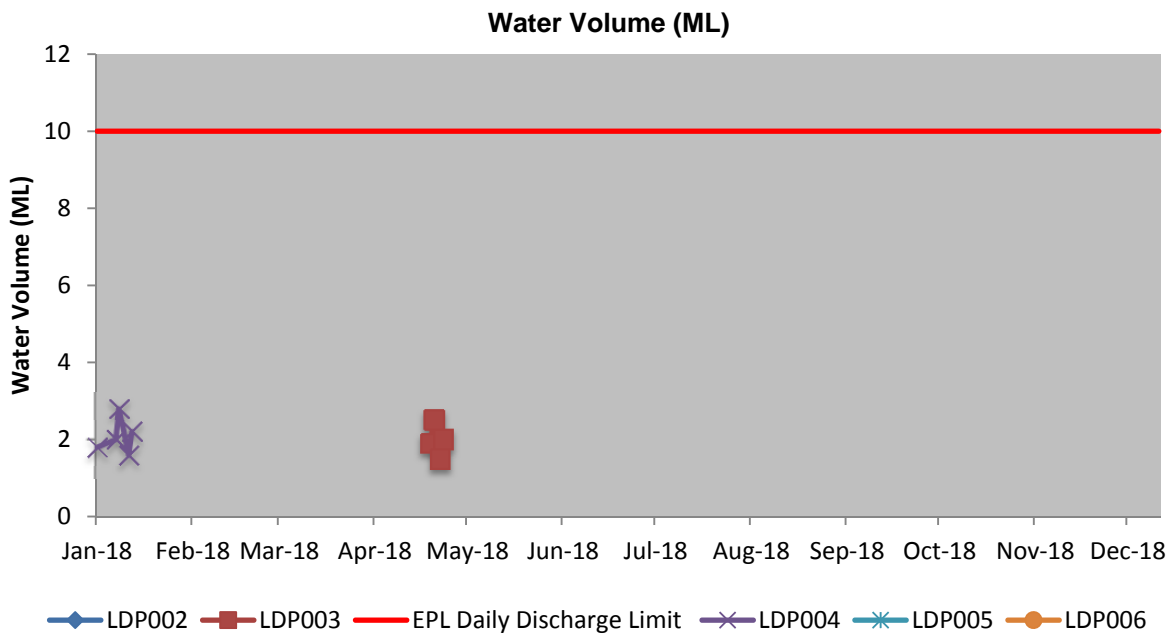
**Figure 4 – Surface Water Electrical Conductivity (EC) Results**



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

Table 3 – Depositional Dust

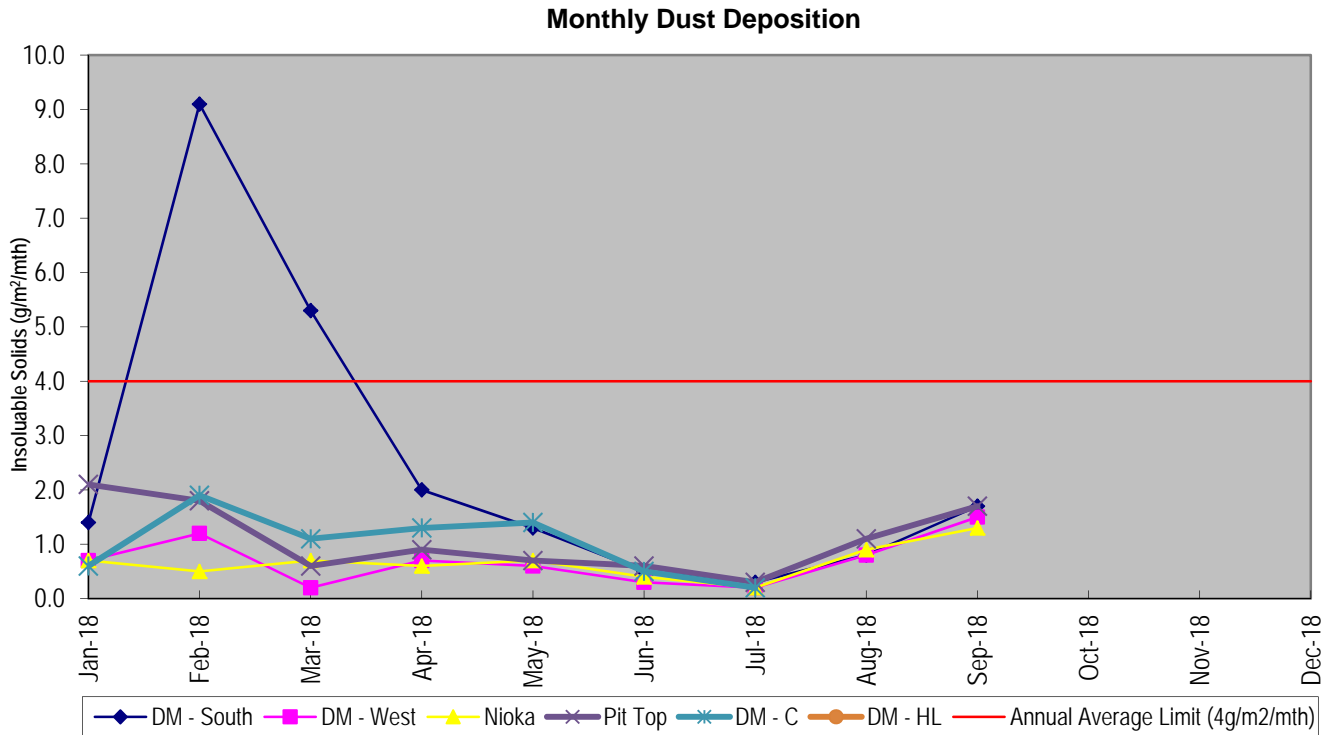
Colliery Name	Dust Gauge No	Date Sampled	Insoluble Solids <sup>1,2</sup>
Charbon	DM - South	10/08/2018 - 10/09/2018	1.7
Charbon	DM - West	10/08/2018 - 10/09/2018	1.5
Charbon	Nioka	10/08/2018 - 10/09/2018	1.3
Charbon	Pit Top	10/08/2018 - 10/09/2018	1.7

DM – Dust Gauge

1. Annual Average Limit (4 g/m<sup>2</sup>/mth)
2. Maximum increase in deposited dust level (2 g/m<sup>2</sup>/mth) (annual average limit)

The Air Quality Management Plan at Charbon Colliery was reviewed during 2018 and was approved by the Department of Planning and Environment on 29 June 2018. The revised air quality monitoring program requires depositional dust gauge monitoring to be undertaken at the DM-South, DM-West, Nioka and Pit Top monitoring locations.

Depositional dust gauge (DDG) monitoring data indicated that dust deposition results for September 2018 ranged from 1.3 g/m<sup>2</sup>/mth to 1.7 g/m<sup>2</sup>/mth. EPL 528 does not include a license limit for depositional dust; however, a maximum total deposited dust level of 4 g/m<sup>2</sup>/mth and a maximum increase in deposited dust level (2 g/m<sup>2</sup>/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)

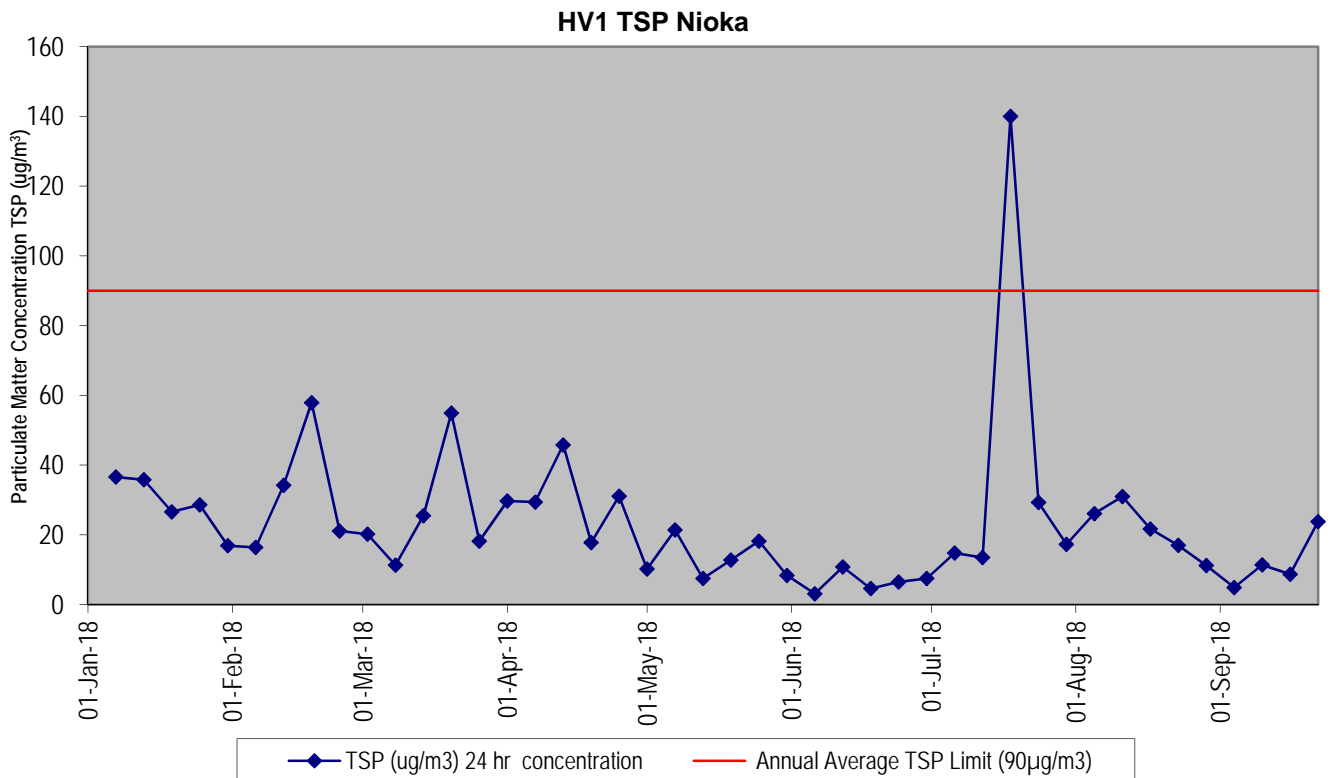
High volume air samplers monitored Particulate Matter (PM) concentrations (less than 10 micrometres in size) and Total Suspended Particulates (TSP) during the reporting period. A summary of monitoring results is provided in Table 4 and Table 5 and shown graphically in Figure 8 and Figure 9, below.

**Table 4 – HVAS TSP Nioka**

Data Published:		October 2018					Licensee:		Charbon Coal Pty Ltd				
Data Sampled:		January – September 2018					Address:		Charbon Rd Charbon NSW 2848				
Data Obtained:		26/09/2018					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/m <sup>3</sup> ) 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 (90ug/m <sup>3</sup> )		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/m <sup>3</sup> ) 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 (90ug/m <sup>3</sup> )		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 <sup>3</sup> ) 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 (90ug/m <sup>3</sup> )	90	90	90	90	90	90	90	90	90	90	90
Date	18/07/2018	24/07/2018	30/07/2018	05/08/2018	11/08/2018	17/08/2018	23/08/2018	29/08/2018	04/09/2018	10/09/2018	16/09/2018
TSP (ug/m <sup>3</sup> ) 24 hr concentration	140	29.3	17.3	26.1	31.0	21.7	17.0	11.2	4.9	11.4	8.7
Annual Average TSP Limit (90ug/m <sup>3</sup> )	90	90	90	90	90	90	90	90	90	90	90
Date	22/09/2018										
TSP (ug/m <sup>3</sup> ) 24 hr concentration	23.8										
Annual Average TSP Limit (90ug/m <sup>3</sup> )	90	90	90	90	90	90	90	90	90	90	90

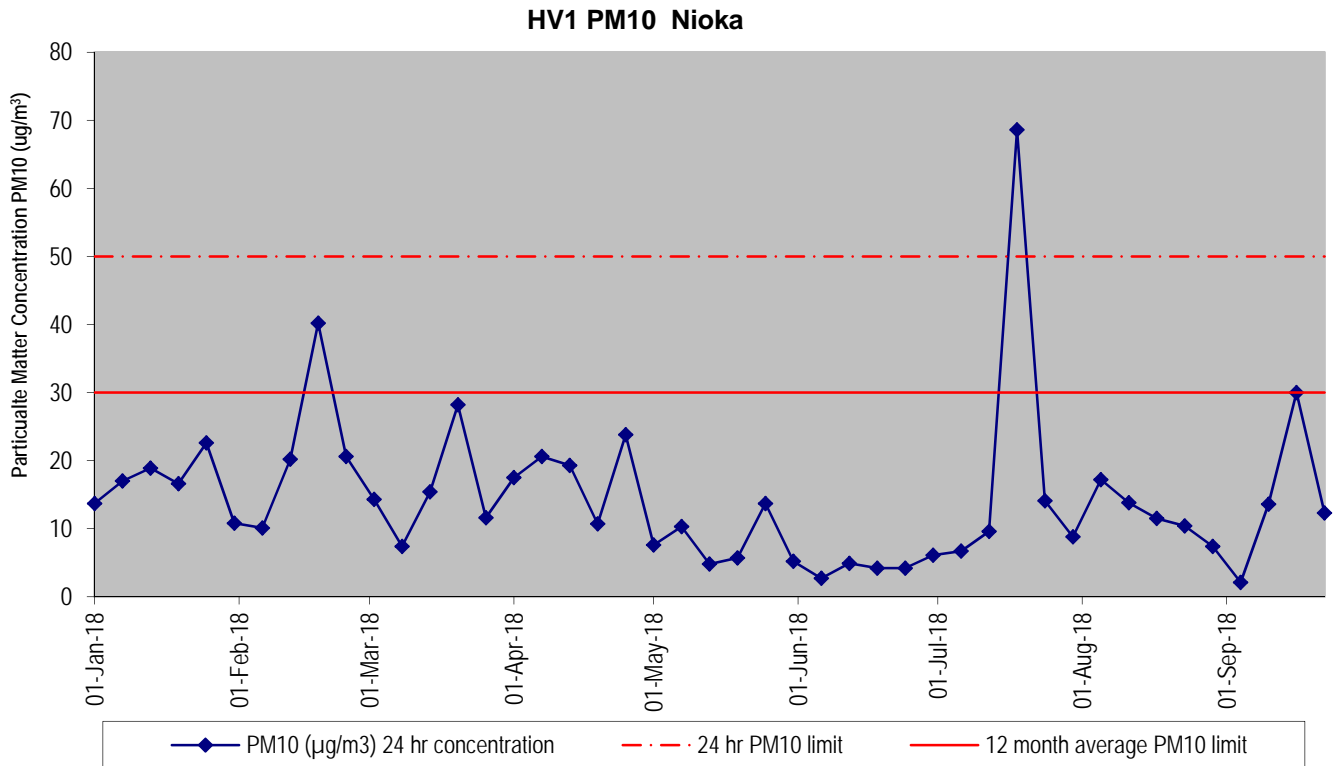
\*Power supply to units is intermittent and run times and flow could not be determined.



**Figure 8 – HVAS TSP Nioka**

Table 5 – HVAS PM10 Nioka

Data Published:	October 2018				Licensee:			Charbon Coal Pty Ltd			
Data Sampled:	January – September 2018				Address:			Charbon Rd Charbon NSW 2848			
Data Obtained:	26/09/2018				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 <sup>3</sup> ) 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 <sup>3</sup> ) 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 <sup>3</sup> ) 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	30/07/2018	05/08/2018	11/08/2018	17/08/2018	23/08/2018	29/08/2018	04/09/2018	10/09/2018	16/09/2018
PM10 (ug/m <sup>3</sup> ) 24 hr concentration	68.6	14.1	8.8	17.2	13.8	11.5	10.4	7.4	2.1	13.6	30.0
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	22/09/2018										
PM10 (ug/m <sup>3</sup> ) 24 hr concentration	12.3										
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



**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<sup>3</sup>, whilst particulate matter less than PM<sub>10</sub> have a 24 hour limit of 50 µg/m<sup>3</sup> and an annual average limit of 30 µg/m<sup>3</sup>.

The monitoring results for the reporting period were below the limits prescribed in Project Approval 08\_0211. Referring to Table 4 and Table 5 and corresponding Figure 8 and Figure 9, there have been no exceedances for the reporting period.

## 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 L<sub>Amax</sub>, L<sub>A1</sub>, L<sub>A10</sub>, L<sub>A90</sub> and L<sub>Aeq</sub>. The results of noise monitoring conducted on the 4<sup>th</sup> and 5<sup>th</sup> 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

<b>Data Published:</b>	July 2018	<b>Licensee:</b>	Charbon Coal Pty Ltd					
<b>Data Sampled:</b>	05/06/18	<b>Address:</b>	Charbon Rd Charbon NSW 2848					
<b>Data Obtained:</b>	22/06/18	<b>EPL No.</b>	528					
Measured Noise Levels dB(A)								
Day	LA <sub>max</sub>	LA <sub>1</sub>	LA <sub>10</sub>	LA <sub>90</sub>	LA <sub>eq</sub>	Estimated Mine Contribution LA <sub>eq</sub> (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 = 10°C VTG = -1.6°C/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 = 9°C VTG = -1.8°C/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 = 9°C VTG = -1.6°C/100m
Noise consent limits with units of measure	35							

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

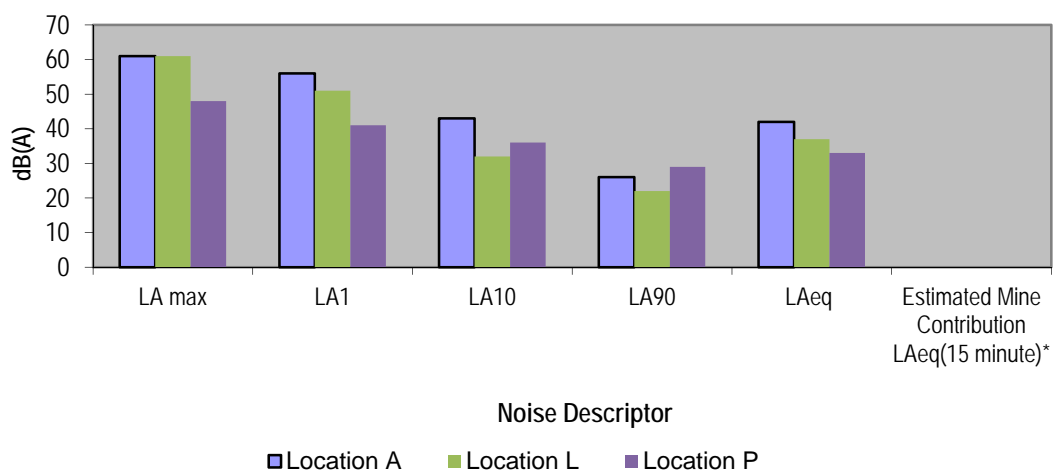


Figure 10 – June Daytime Noise Monitoring

Table 7 – June Evening Noise Monitoring

<b>Data Published:</b>	July 2018	<b>Licensee:</b>	Charbon Coal Pty Ltd					
<b>Data Sampled:</b>	04/06/18	<b>Address:</b>	Charbon Rd Charbon NSW 2848					
<b>Data Obtained:</b>	22/06/18	<b>EPL No.</b>	528					
Measured Noise Levels dB(A)								
Evening	LA <sub>max</sub>	LA <sub>1</sub>	LA <sub>10</sub>	LA <sub>90</sub>	LA <sub>eq</sub>	Estimated Mine Contribution LA <sub>eq</sub> (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 = 10°C VTG = 3.0°C/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 = 10°C VTG = 3.0°C/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 = 12°C VTG = 3.0°C/100m
Noise consent limits with units of measure	35							

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

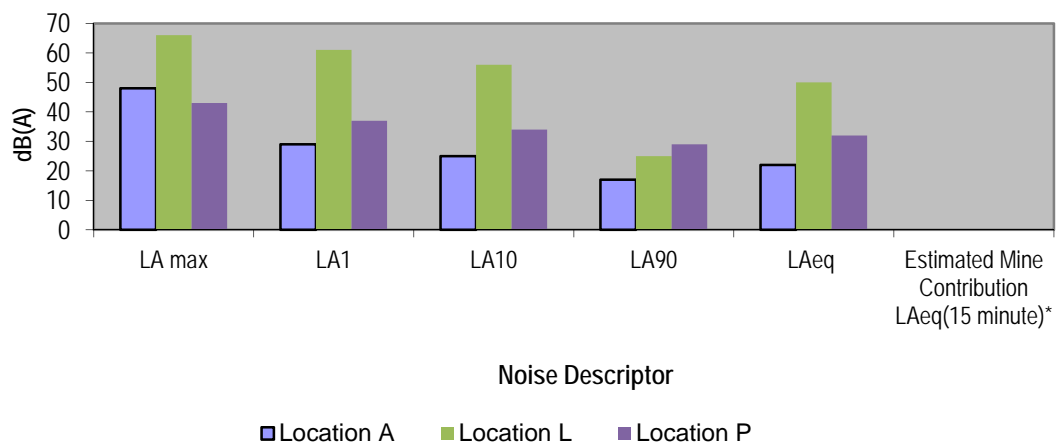


Figure 11 – June Evening Noise Monitoring

Table 8 – June Night Noise Monitoring

<b>Data Published:</b> July 2018		<b>Licensee:</b> Charbon Coal Pty Ltd						
<b>Data Sampled:</b> 04/06/18		<b>Address:</b> Charbon Rd Charbon NSW 2848						
<b>Data Obtained:</b> 22/06/18		<b>EPL No.</b> 528						
Measured Noise Levels dB(A)								
Night	LA <sub>max</sub>	LA <sub>1</sub>	LA <sub>10</sub>	LA <sub>90</sub>	LA <sub>eq</sub>	Estimated Mine Contribution LA <sub>eq</sub> (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 = 8°C VTG = 3.0°C/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 = 9°C VTG = 3.0°C/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 = 9°C VTG = 3.0°C/100m
Noise consent limits with units of measure	35							

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

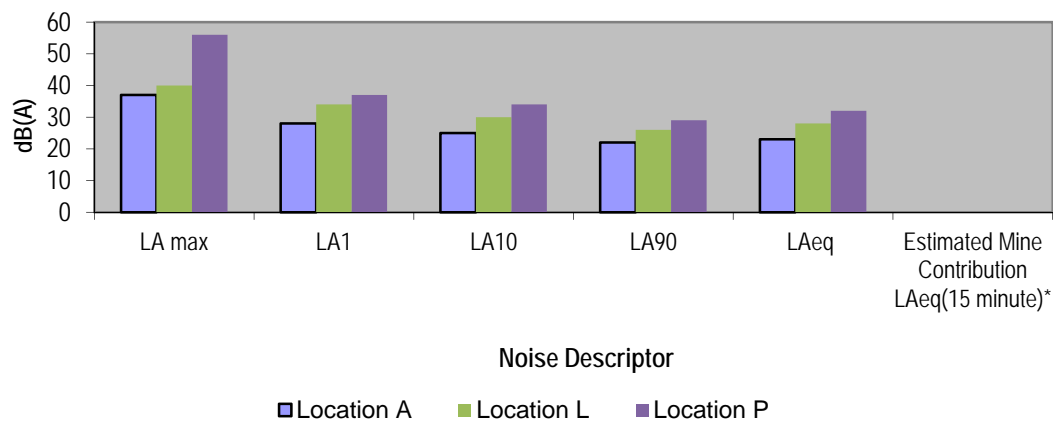


Figure 12 – June Night Noise Monitoring



## COMPLAINTS REGISTER

There were no complaints made to Charbon Colliery during the September 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:		October 2018					Licensee:			Charbon Coal Pty Ltd			
Data Sampled:		Jan – Sept 2018					Address:			Charbon Rd Charbon NSW 2848			
Data Obtained:		01/10/2018					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	0	-	-	-	0
Water	0	0	0	0	0	0	0	0	0	-	-	-	0
Noise	0	0	0	0	0	0	0	0	0	-	-	-	0
Flora & Fauna	0	0	0	0	0	0	0	0	0	-	-	-	0
Subsidence	0	0	0	0	0	0	0	0	0	-	-	-	0
Waste	0	0	0	0	0	0	0	0	0	-	-	-	0
Other	0	0	0	0	0	0	0	1	0	-	-	-	0
													<b>1</b>

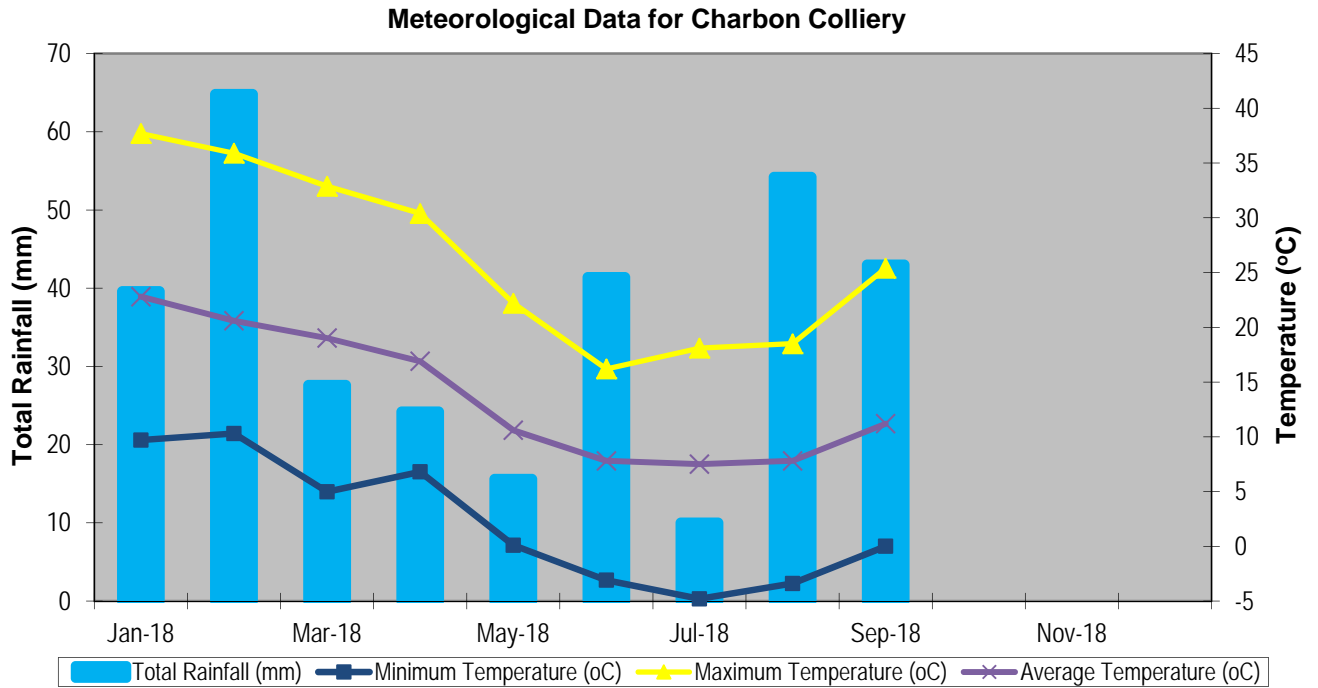
## WEATHER

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:		October 2018		Licensee:		Charbon Coal Pty Ltd	
Data Sampled:		Jan – Sept 2018		Address:		Charbon Rd Charbon NSW 2848	
Data Obtained:		10/10/2018		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	54.2	-3.4	18.5	7.8
Sep-18	43.0	0.0	25.4	11.2
Oct-18	-	-	-	-
Nov-18	-	-	-	-
Dec-18	-	-	-	-



**Figure 13 – Charbon Colliery Meteorological Data**

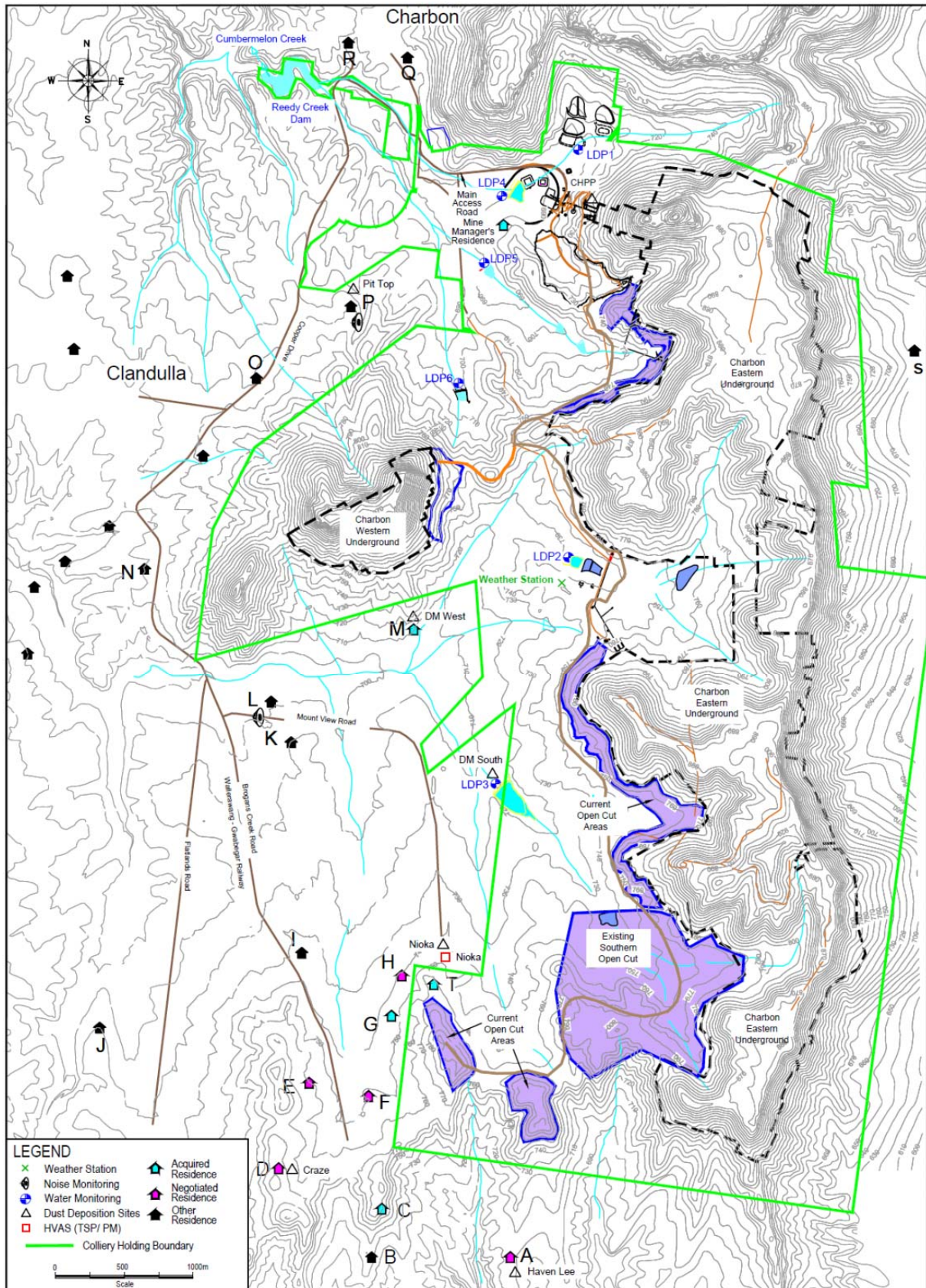
**WASTE**

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**

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

# APPENDIX 1: CHARBON COLLIERY SENSITIVE RECEIVER AND MONITORING LOCATIONS



Charbon 2013 AEMR  
Sensitive Receiver and Monitoring Locations

Figure 14 – Charbon Colliery Sensitive Receiver and Monitoring Locations

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Centennial Coal Company Limited

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