



Report

Site:	Chain Valley Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Report - December 2016
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Introduction

LakeCoal Pty Ltd (LakeCoal) operates the Chain Valley Colliery, an underground coal mine at the southern end of Lake Macquarie.

Chain Valley Colliery operates under the following regulatory instruments;

- A Development Consent, SSD-5465 (as modified) issued under the Environmental Planning and Assessment Act, 1979.
- An Environment Protection Licence (1770) issued under the Protection of the Environment Operations Act, 1997.
- A groundwater bore licence (20BL173107) issued under the Water Act, 1912.

The above development consent/approval and licences require various monitoring and reporting to be undertaken by LakeCoal for Chain Valley Colliery.

This report provides environmental monitoring data from Chain Valley Colliery for the period 1 December 2016 to 31 December 2016.

Details of the Chain Valley Colliery EPL 1770 are provided below.

Chain Valley Colliery Information	
Premises name	Chain Valley Colliery
Address	Construction Road, Chain Valley Bay, NSW, 2259
Licensee	LakeCoal Pty Ltd
EPL #	1770
EPL location	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50980&SYSUID=1&LICID=1770

The overall purpose of this report is to keep stakeholders informed of the environmental monitoring results at Chain Valley Colliery and maintain a transparent and accountable reporting system.

Scope

This report presents the results from the various environmental monitoring programs undertaken for Chain Valley Colliery.

Results in this report are typically only a single month of data, which is due to a legislative requirement introduced by the *Protection of the Environment Legislation Amendment Act 2011*, which requires publishing data publically within 14 days. As LakeCoal is required to undertake monitoring on a monthly basis, each report generally cover a single month of environmental monitoring data.

Where applicable, the results of the monitoring programs are compared with the relevant criteria (from the EPL or Development Consent) to determine compliance.

Monitoring results presented include;

- Water – quality
- Water – volume
- Depositional dust
- Operational noise
- Weather data

Definitions

dB– decibels

dB(A) – noise level measurement units are decibels (dB). The A-weighting scale is used to approximate human perception of noise

g/m²/month – grams per square metre per month

kL– kilolitres

L_{Aeq}–the average A-weighted noise energy (in dB) for a measurement period

mg/L – milligrams per litre

µg/L – micrograms per litre

µS/cm – microSiemens per centimetre

References

ALS Group - Monthly Water Monitoring Results December 2016 - Work Order ES1628791)

ALS Water - Report of Analysis (WN1604581)

Steel River Testing - Dust Deposition Report December 2016 (Report 12635-0)

Development Consent SSD-5465 (as modified)

Environment Protection Licence 1770 (Licence version date: 8 June 2016)

Monitoring Results

Water – Quality

December 2016			
EPL	1770		
Licensee	LakeCoal Pty Ltd		
Premises	Chain Valley Colliery		
Date Sampled	14-Dec-16		
Date Obtained	21-Dec-16		
Date Reported	Refer report date		
Sampling Point	1		
Parameter	Units	Limit	Result
Biochem. Oxygen Demand	mg/L	-	<2
Enterococci	col/100mL	-	200
Faecal Coliforms	CFU/100mL	200	<5
pH	pH	6.5-8.5	7.75
Total Sus. Solids	mg/L	50	<5

There was no exceedance of water quality criteria during the month.

Water – Volume

December 2016	
EPL	1770
Licensee	LakeCoal Pty Ltd
Premises	Chain Valley Colliery
Date Sampled	Daily
Date Reported	Refer report date
Discharge volume limit	12161 kilolitres per day
Sampling Point	1

Date (24 hour period)	Unit	Volume
1/12/2016	kL	6878
2/12/2016	kL	6726
3/12/2016	kL	6678
4/12/2016	kL	6634
5/12/2016	kL	6723
6/12/2016	kL	6906
7/12/2016	kL	7611
8/12/2016	kL	6870
9/12/2016	kL	6720
10/12/2016	kL	6781
11/12/2016	kL	6713
12/12/2016	kL	6751
13/12/2016	kL	6434
14/12/2016	kL	6179
15/12/2016	kL	7110
16/12/2016	kL	7955
17/12/2016	kL	5394
18/12/2016	kL	5189
19/12/2016	kL	6258
20/12/2016	kL	5678
21/12/2016	kL	5655
22/12/2016	kL	6299
23/12/2016	kL	6482
24/12/2016	kL	7198
25/12/2016	kL	6750
26/12/2016	kL	6433
27/12/2016	kL	6493
28/12/2016	kL	6051
29/12/2016	kL	6070
30/12/2016	kL	6652
31/12/2016	kL	6700

There were no exceedances of the volumetric limits at the Licenced Discharge Point during the month.

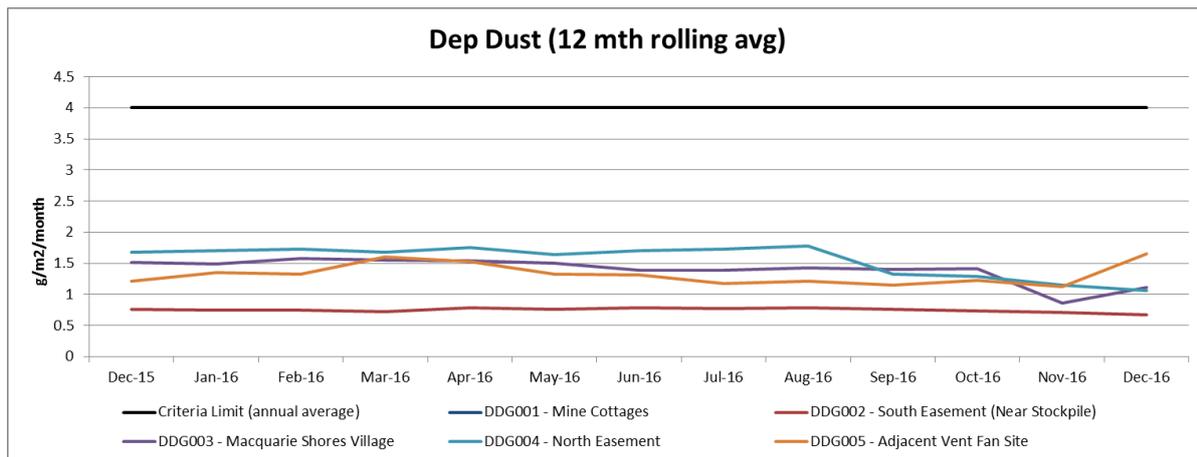
Depositional Dust

December 2016		
Sampling Date	11/11/2016 to	12/12/2016

Site	Insoluble Matter (g/m ² /month)
DDG001	0.9
DDG002	1.2
DDG003	6.0
DDG004	0.9
DDG005	6.9

Notes:

- For site locations refer to Air Quality Management Plan
- DDG003 and DDG005 readings likely a result of nearby mowing as sample recorded high ash content result



Operational Noise

Noise monitoring was undertaken in December. No exceedances were recorded. Attended noise monitoring results will be made available in the next website report. The next round of monitoring is scheduled for March 2017.

CVC Environmental Noise Monitoring Quarter 4 2016

Table 4.2: *L_{Aeq,15minute}* GENERATED BY CVC AGAINST IMPACT ASSESSMENT CRITERIA – QUARTER 4 2016

Location	Start Date and Time	Wind Speed m/s	VTG °C per 100m ¹	L _{Aeq} Criterion dB	Criterion Applies? ²	CVC L _{Aeq} dB ^{3,4,5}	Exceedance ^{4,5}
<i>Day</i>							
ATN001	25/11/2016 10:21	1.3	-2	35	Yes	IA	Nil
ATN002	25/11/2016 11:51	2.3	-2	49	Yes	<35	Nil
ATN003	25/11/2016 11:08	1.5	-2	36	Yes	IA	Nil
ATN004	25/11/2016 12:40	3.4	-2	35	No	IA	NA
ATN005	25/11/2016 13:09	3.3	-2	35	No	IA	NA
ATN006	25/11/2016 13:36	2.9	-2	37	Yes	IA	Nil
ATN007	25/11/2016 14:13	2.6	-2	46	Yes	40	Nil
R13	25/11/2016 12:13	2.7	-2	43	Yes	IA	Nil
<i>Evening</i>							
ATN001	24/11/2016 18:00	2.1	-2	35	Yes	IA	Nil
ATN002	24/11/2016 20:04	1.2	3	49	Yes	IA	Nil
ATN003	24/11/2016 19:07	1.5	3	36	Yes	IA	Nil
ATN004	24/11/2016 18:46	1.4	-2	35	Yes	IA	Nil
ATN005	24/11/2016 20:31	0.7	3	35	Yes	IA	Nil
ATN006	24/11/2016 20:55	0.5	3	37	Yes	IA	Nil
ATN007	24/11/2016 21:38	0.5	3	46	Yes	42	Nil
R13	24/11/2016 19:46	1.1	3	43	Yes	IA	Nil
<i>Night</i>							
ATN001	25/11/2016 01:12	0.4	3	35	Yes	IA	Nil
ATN002	25/11/2016 00:02	0.8	-1	49	Yes	40	Nil
ATN003	24/11/2016 23:22	0.4	3	36	Yes	IA	Nil
ATN004	25/11/2016 00:44	1.1	-1	35	Yes	IA	Nil
ATN005	24/11/2016 22:54	0.3	3	35	Yes	IA	Nil
ATN006	24/11/2016 22:31	0.2	3	37	Yes	IA	Nil
ATN007	24/11/2016 22:00	0.3	3	46	Yes	42	Nil
R13	25/11/2016 00:22	1.1	-1	43	Yes	IA	Nil

Notes:

1. *Sigma theta* data used to calculate Vertical Temperature Gradient (VTG) in accordance with procedures detailed in the INP;
2. Noise emission limits do not apply for winds greater than 3 metres per second (at a height of 10 metres); or temperature inversion conditions greater than 3°C/100m;
3. These are results for Chain Valley Colliery (CVC) in the absence of all other noise sources;
4. Bolded results in red are those greater than the relevant criterion (if applicable); and
5. NA in exceedance column means atmospheric conditions outside conditions specified in the Consent and so criterion is not applicable.

Table 4.3: $L_{A1,1min}$ GENERATED BY CVC AGAINST IMPACT ASSESSMENT CRITERIA – QUARTER 4 2016

Location	Start Date And Time	Wind Speed m/s	VTG °C per 100m ¹	$L_{A1,1min}$ Criterion dB	Criterion Applies? ²	CVC $L_{A1,1min}$ dB ^{3,4,5}	Exceedance ⁵
ATN001	25/11/2016 01:12	0.4	3	45	Yes	IA	Nil
ATN002	25/11/2016 00:02	0.8	-1	53	Yes	45	Nil
ATN003	24/11/2016 23:22	0.4	3	45	Yes	IA	Nil
ATN004	25/11/2016 00:44	1.1	-1	45	Yes	IA	Nil
ATN005	24/11/2016 22:54	0.3	3	45	Yes	IA	Nil
ATN006	24/11/2016 22:31	0.2	3	45	Yes	IA	Nil
ATN007	24/11/2016 22:00	0.3	3	46	Yes	43	Nil
R13	25/11/2016 00:22	1.1	-1	49	Yes	IA	Nil

Notes:

1. Sigma theta data used to calculate Vertical Temperature Gradient (VTG) in accordance with procedures detailed in the INP;
2. Noise emission limits do not apply for winds greater than 3 metres per second (at a height of 10 metres); or temperature inversion conditions greater than 3°C/100m;
3. These are results for Chain Valley Colliery (CVC) in the absence of all other noise sources;
4. Bolded results in red are those greater than the relevant criterion (if applicable); and
5. NA in exceedance column means atmospheric conditions outside conditions specified in the Consent and so criterion is not applicable.

Weather Data

A summary of weather data recorded by an adjacent site meteorological monitoring station at the Colliery is presented below for the year to date.

Monthly Weather Data			
2016			
EPL	191		
Licensee	LakeCoal Pty Ltd		
Premises	Mannering Colliery		
Location	W1 (on-site weather station)		
Date publ	Refer report date		
Date sam	Daily		
Date obta	6/01/2016		
Month	Total Rainfall / Month (mm)	Minimum Temperature (°C)	Maximum Temperature (°C)
Jan-16	329	14.3	36
Feb-16	17.4	16.4	37.7
Mar-16	92.2	14.3	30.1
Apr-16	36.2	12.1	33.5
May-16	46.6	5.3	27.8
Jun-16	248.2	3.4	21.4
Jul-16	73.2	2.5	25
Aug-16	115	4.5	24.3
Sep-16	68	7.4	24.2
Oct-16	61	7.3	33.3
Nov-16	46.8	10.9	35.2
Dec-16	85.2	14.5	38.9