

Mannering Colliery Monthly Website Report

Site:	Mannering Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Website Report - December 2019
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Monthly Website Report

Mannering Colliery Monthly Environmental Report

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Summary

Environmental monitoring results are presented in this report for monitoring undertaken in December 2019.

Introduction

Great Southern Energy Pty Ltd (trading as Delta Coal) operates the Mannering Colliery, an underground coal mine at the southern end of Lake Macquarie.

Mannering Colliery operates under the following regulatory instruments;

- Section 66(6) of the *Protection of the Environmental Operations Act 1997*, to make monitoring data related to an Environment Protection Licence (EPL) publically available;
- Condition 7 & 10, Schedule 5, of Project Approval 06_0311 (as modified) to provide details of monitoring results and environmental performance;
- An Environment Protection Licence (EPL 191) issued under the *Protection of the Environment Operations Act 1997*; and
- A Water Access Licence (WAL40461), Aquifer Aquifer (Sydney Basin North Coast Groundwater Source) for 450 unit shares (megalitres).

This report provides environmental monitoring data from Mannering Colliery for the period 1 to 31 December 2019.

Mannering Colliery Information		
Premises name	Mannering Colliery	
Address	Ruttleys Road, Doyalson, NSW, 2262	
Licensee	Great Southern Energy Pty Ltd	
EPL#	191	
EPL location	http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50781&SYS UID=1&LICID=191	

Details of the Mannering Colliery EPL 191 are provided below.

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

Scope

This report presents the results from the various environmental monitoring programs undertaken for Mannering Colliery. Results are presented monthly with annual data, averages and trends in data also shown where relevant.

Where applicable, the results of the monitoring programs are compared with the relevant criteria (from the EPL or Project Approval) to assess compliance.

Monitoring results presented include:

- Water quality;
- Water volume;
- Air Quality; and
- 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 – kilolitre;

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

ML – megalitre;

mg/L – milligrams per litre;

TSS – total suspended solids;

 μ g/L – micrograms per litre; and

 μ S/cm – microSiemens per centimetre.

References

Project Approval 06_0311 (as modified)

Environment Protection Licence 191 (Licence version date: 1 April 2019)

Steel River Testing - Dust Deposition Report December 2019

Steel River Testing - Water Analysis Report December 2019

Monitoring Results

Water – Quality

Weekly water quality results are presented below. Monitoring of these parameters reverted to weekly as per EPL PRP requirements.

December 2019					
EPL	191				
Licensee	LakeCoal Pty Ltd				
Premises	Mannering Colliery				
Period	01-Dec-19	to	31-Dec-19		
Location	LDP001 (EPA ID # 1)	.0	01-Dec-15		
Date sampled	Weekly				
Date reported	Refer report date				
Monitoring requirement	Veeklu				
pH limit	6.5 - 8.5				
TSS limit (mg/L)	50				
Oil and grease limit (mg/L)					
Exceedance (Yes/No)	No				
Vater Quality Results	NO				
water Quanty riesuits		TSS	Oil and grease		
Date	рН	(mg/L)	(mg/L)		
Sunday, 1 December 2019	r		(
Monday, 2 December 2019	7.8	<1	<5		
Tuesday, 3 December 2019			,* 		
Wednesday, 4 December 2019					
Thursday, 5 December 2019					
Friday, 6 December 2019					
Saturday, 7 December 2019					
Sunday, 8 December 2019					
Monday, 9 December 2019	7.7	2	<5		
Tuesday, 10 December 2019	1.1	2			
Vednesday, 11 December 2019					
Thursday, 12 December 2019					
Friday, 13 December 2019					
Saturday, 14 December 2019					
Sunday, 15 December 2019					
Monday, 16 December 2019					
Tuesday, 17 December 2019	7.8	5	<5		
Wednesday, 18 December 2019	1.0				
Thursday, 19 December 2019					
Friday, 20 December 2019					
Saturday, 21 December 2019					
Sunday, 22 December 2019					
Monday, 23 December 2019					
Tuesday, 24 December 2019	7.8	4	<5		
Wednesday, 25 December 2019			<u>``</u>		
Thursday, 26 December 2019					
Friday, 27 December 2019					
Saturday, 28 December 2019			1		
Sunday, 29 December 2019					
Monday, 30 December 2019	7.8	5	<5		
Tuesday, 31 December 2019		~	<u>``</u>		
Average	7.8	4.0	<5		
Misinin	7.7	2.0	<5		
Mazinan	7.8	5.0	<5		
	1.0	0.0	10		

There were no exceedances of water quality criteria during the month.

			ng date / time	24-Dec-2019 10:50
Compound	CAS Number	LOR	Unit	ES1942682-001 Result
A010P: Conductivity by PC Titrator				Result
Electrical Conductivity @ 25°C		1	µS/cm	29900
D040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	149
Silicon as SiO2	14464-46-1	0.1	mg/L	13.6
D093F: Dissolved Major Cations				
Calcium Magnesium	7440-70-2	1	mg/L mg/L	247
Potassium	7439-95-4 7440-09-7	1	mg/L	42
G020F: Dissolved Metals by ICP-MS	1440-05-1		g.z	
Aluminium	7429-90-5	0.01	mg/L	<0.10
Antimony	7440-36-0	0.001	mg/L	<0.010
Arsenic	7440-38-2	0.001	mg/L	<0.010
Beryllium	7440-41-7	0.001	mg/L	<0.010
Barium Cadmium	7440-39-3	0.001	mg/L	0.257
Chromium	7440-43-9 7440-47-3	0.0001	mg/L mg/L	<0.0010
Copper	7440-47-3	0.001	mg/L	<0.010
Cobalt	7440-48-4	0.001	mg/L	<0.010
Nickel	7440-02-0	0.001	mg/L	<0.010
Lead	7439-92-1	0.001	mg/L	<0.010
Zinc	7440-66-6	0.005	mg/L	<0.050
Lithium	7439-93-2	0.001	mg/L	0.844
Manganese Molybdenum	7439-96-5 7439-98-7	0.001	mg/L mg/L	0.051 <0.010
Selenium	7439-98-7	0.001	mg/L	<0.10
Silver	7440-22-4	0.001	mg/L	<0.010
Tin	7440-31-5	0.001	mg/L	<0.010
Vanadium	7440-62-2	0.01	mg/L	<0.10
Boron	7440-42-8	0.05	mg/L	0.54
Iron	7439-89-6	0.05	mg/L	<0.50
G035F: Dissolved Mercury by FIMS				
Mercury	7439-97-6	0.0001	mg/L	<0.0001
EK055G: Ammonia as N by Discrete Anal Ammonia as N	yser 7664-41-7	0.01	mg/L	1.15
	7004-41-7	0.01	ingre	1.15
EA010P: Conductivity by PC Titrator				
EA010P: Conductivity by PC Titrator Electrical Conductivity @ 25°C		1	µS/cm	29900
Electrical Conductivity @ 25°C		1	µS/cm	29900
Electrical Conductivity @ 25°C	63705-05-5	1	µS/cm mg/L	29900 149
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions	 63705-05-5 14464-46-1			
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations		1 0.1	mg/L mg/L	149 13.6
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium	14464-46-1 7440-70-2	1 0.1 1	mg/L mg/L mg/L	149 13.6 247
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium	14464-46-1 7440-70-2 7439-95-4	1 0.1 1 1	mg/L mg/L mg/L mg/L	149 13.6 247 326
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Suffur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium	14464-46-1 7440-70-2	1 0.1 1	mg/L mg/L mg/L	149 13.6 247
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS	14464-46-1 7440-70-2 7439-95-4 7440-09-7	1 0.1 1 1 1	mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Suffur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5	1 0.1 1 1	mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium	14464-46-1 7440-70-2 7439-95-4 7440-09-7	1 0.1 1 1 1 0.01	mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-36-0	1 0.1 1 1 1 0.01 0.001	mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 ≪0.10 <0.010
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calclum Magneslum Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2	1 0.1 1 1 0.01 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10 <0.010 <0.010
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Suffur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-0 7440-38-2 7440-41-7	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.0001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10 <0.010 <0.010 <0.010 0.257 <0.0010
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chormium	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-41-7 7440-43-9 7440-43-9 7440-43-9	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 ≪0.10 ≪0.010 ≪0.010 ≪0.010 0.257 ≪0.0010 ≪0.010
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chromium	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-41-7 7440-43-9 7440-47-3 7440-47-3	1 0.1 1 1 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 ≪0.10 ≪0.010 ≪0.010 ≪0.010 <0.010 <0.010 ≪0.010
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chromium Copper Cobalt	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-41-7 7440-38-3 7440-43-3 7440-43-3 7440-43-3 7440-47-3 7440-47-3	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10 <0.010 <0.010 <0.010 0.257 <0.0010 <0.010 <0.010 <0.010 <0.010
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Suffur as S Sillicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chromium Copper Cobalt Nickel	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-43-9 7440-43-9 7440-47-3 7440-50-8 7440-50-8	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Suffur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barium Cadmium Chomium Chopper Cobalt	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-38-2 7440-43-3 7440-43-3 7440-43-3 7440-43-4 7440-45-08 7440-02-0 7439-92-1	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10 <0.010 <0.010 <0.010 0.257 <0.0010 <0.010 <0.010 <0.010 <0.010
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chromium Copper Cobalt Nickel Lead	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-43-9 7440-43-9 7440-47-3 7440-50-8 7440-50-8	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010 <0.010
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Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chomium Copper Cobalt Nickel Lead Zinc Lithium	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-38-2 7440-43-9 7440-43-9 7440-43-9 7440-43-8 7440-48-4 7440-02-0 7439-92-1 7440-66-6 7439-93-2	1 0.1 1 1 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-38-3 7440-43-9 7440-43-9 7440-43-9 7440-43-9 7440-43-8 7440-43-8 7440-43-8 7440-43-9 7440-68-6 7439-93-2 7439-98-5 7439-98-7	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-0 7440-38-2 7440-38-3 7440-43-3 7439-98-7 7439-98-7 77782-49-2 7440-22-4	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barium Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-38-2 7440-38-3 7440-43-9 7440-43-9 7440-48-4 7440-48-4 7440-48-4 7440-66-6 7439-92-1 7440-66-6 7439-98-7 7439-98-5 7439-98-5 7439-98-5 7439-98-5 7439-98-5	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium Selenium Silver Tin	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-38-2 7440-38-2 7440-43-9 7440-43-9 7440-43-9 7440-48-4 7440-02-0 7439-92-1 7440-68-6 7439-93-2 7439-98-5 7439-98-5 7439-98-7 7782-49-2 7440-22-4 7440-31-5	1 0.1 1 1 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Suthur as S Sillicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium Silver Tin Vanadium	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-38-2 7440-43-3 7440-43-3 7440-43-3 7440-43-3 7440-43-3 7440-43-3 7440-43-3 7440-43-5 7439-92-1 7439-93-2 7439-93-2 7439-93-2 7439-93-2 7439-93-2 7439-93-2 7439-93-2 7440-63-6 7440-22-4 7440-63-5	1 0.1 1 1 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Suffur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium Silver Tin Vanadium Boron	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-38-2 7440-38-2 7440-43-9 7440-43-9 7440-43-9 7440-48-4 7440-02-0 7439-92-1 7440-68-6 7439-93-2 7439-98-5 7439-98-5 7439-98-7 7782-49-2 7440-22-4 7440-31-5	1 0.1 1 1 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barlum Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium Silver Tin Vanadium Boron Iron	14464-46-1 7439-95-4 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-38-3 7440-43-9 7440-43-9 7440-43-9 7440-47-3 7440-48-4 7440-02-0 7439-92-1 7440-66-6 7439-93-2 7439-98-5 7439-98-5 7439-98-7 7782-49-2 7440-22-4 7440-22-4 7440-62-2 7440-62-2	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barium Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium Silver Tin Vanadium Boron Iron EG035F: Dissolved Mercury by FIMS Mercury	14464-46-1 7439-95-4 7439-95-4 7440-09-7 7429-90-5 7440-38-2 7440-38-2 7440-38-3 7440-38-3 7440-43-9 7440-43-9 7440-43-9 7440-43-8 7440-68-6 7439-92-1 7440-68-6 7439-93-2 7439-98-5 7439-98-5 7439-98-5 7440-22-4 7440-22-4 7440-22-4 7440-62-2 7440-62-2	1 0.1 1 1 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sulfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryllium Barium Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium Silver Tin Vanadium Boron Iron	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7440-38-2 7440-38-2 7440-38-2 7440-38-2 7440-38-3 7440-43-9 7440-43-9 7440-43-9 7440-48-4 7440-48-4 7440-66-6 7439-92-1 7440-66-6 7439-93-2 7439-95-5 7439-95-5 7440-22-4 7440-31-5 7440-62-2 7440-32-6 7439-89-6 7439-89-6	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10
Electrical Conductivity @ 25°C ED040F: Dissolved Major Anions Sutfur as S Silicon as SiO2 ED093F: Dissolved Major Cations Calcium Magnesium Potassium EG020F: Dissolved Metals by ICP-MS Aluminium Antimony Arsenic Beryflium Barlum Cadmium Chromium Copper Cobalt Nickel Lead Zinc Lithium Manganese Molybdenum Selenium Silver Tin Vanadium Boron Iron EG035F: Dissolved Mercury by FIMS Mercury EK055G: Ammonia as N by Discrete Anal	14464-46-1 7440-70-2 7439-95-4 7440-09-7 7440-38-2 7440-38-2 7440-38-2 7440-38-2 7440-38-3 7440-43-9 7440-43-9 7440-43-9 7440-43-9 7440-48-4 7440-420 7439-92-1 7440-66-6 7439-93-2 7439-95-5 7439-98-5 7439-98-5 7440-22-4 7440-22-4 7440-31-5 7440-62-2 7440-32-5 7439-89-6 7439-89-6 7439-97-6	1 0.1 1 1 0.01 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.005 0.001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	149 13.6 247 326 42 <0.10

Monthly water quality results, primarily metals, are presented below for December 2019.

Water - Volume

Monthly water volumes are summarised below.

December 2013			
EPL	191		
Licensee	LakeCoal Pty Ltd		
Premises	Mannering Colliery		
Date Sampled	Daily		
Date Reported	Befer report date		
Discharge volume limit	4000 kilolitres per day		
Sampling Point	LDP001 (EPA ID # 1)		
Sampling Folio	CDF001(CFXID#I)		
Day	Unit	¥olume	
01/12/2019	kL	367	
02/12/2019	kL	606	
03/12/2019	kL	1479	
04/12/2019	kL	736	
05/12/2019	kL	922	
06/12/2019	kL	753	
07/12/2019	kL	15	
08/12/2019	kL	0	
09/12/2019	kL	938	
10/12/2019	kL	606	
11/12/2019	kL	1015	
12/12/2019	kL	606	
13/12/2019	kL	0	
14/12/2019	kL	0	
15/12/2019	kL	0	
16/12/2019	kL	606	
17/12/2019	kL	1492	
18/12/2019	kL	1536	
19/12/2019	kL	667	
20/12/2019	kL	606	
21/12/2019	kL	0	
22/12/2019	kL	0	
23/12/2019	kL	402	
24/12/2019	kL	606	
25/12/2019	kL	606	
26/12/2019	kL	0	
27/12/2019	kL	0	
28/12/2019	kL	606	
29/12/2019	kL	982	
30/12/2019	kL	1334	
31/12/2019	kl	1308	
Autoraa	kL	606	
Average Minimim	kL	0	
Maximum	kL	0 1536	
maximum	NL .	1000	

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

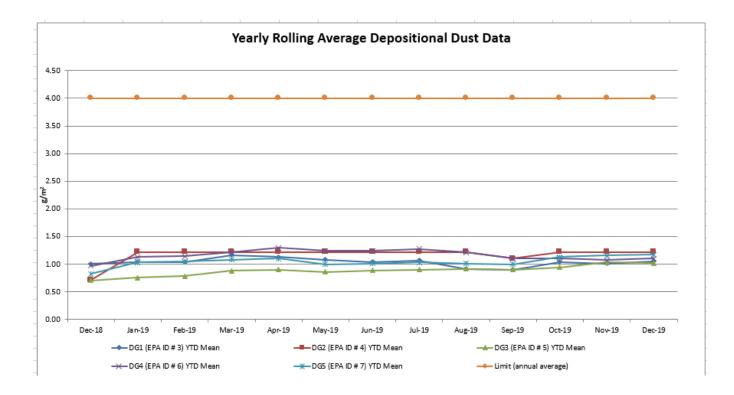
Air Quality

Monthly depositional dust results are shown below.

December 2019			
EPL	191		
Limit	4g/m³ /month		
Sampling	05/11/2019 to	05/12/2019	
Site	Insoluble Matter (g/m2/month)		
DDG001	3.8		
DDG002	2.9		
DDG003	2.3		
DDG004	1.9		
DDG005	1.4		
Notes:			

There were no exceedances of the annual average air quality limits during the reporting period.

Rolling annual average depositional dust results



Weather Data

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

Monthly Weather Data			
2019			
EPL	191		
Licensee	LakeCoal Pty Ltd		
Premises	Mannering Colliery		
Location	W1 (on-site weather station)		
Date published	Refer report date		
Date sampled	Daily		
Date obtained			
Month	Total Rainfall/Month mm	Min Temp	Max Temp
Jan-19	60.6	18.6	39.6
Feb-19	88.6	22.7	37.4
Mar-19	204	10.1	37.1
Apr-19	73.2	8.3	32.8
May-19	11.0	3.9	26.3
Jun-19	158.8	3.9	25.0
Jul-19	47.2	4.0	23.3
Aug-19	194.0	2.0	25.4
Sep-19	92	5.5	29.6
Oct-19	57	9.1	34.9
Nov-19	25	10.5	36.7
Dec-19	1.6	13.6	41.4