

# Monthly Data Summary

## LIDDELL MONTHLY DATA SUMMARY DECEMBER 2017

LICENCE NO	2122
LICENCE HOLDER	AGL MACQUARIE
REPORTING PERIOD	DECEMBER 2017

### A1 Licence Holder

Licence Number 2122  
Licence Holder AGL MACQUARIE  
Trading Name (if applicable)  
ABN 18 167 859 494

### A2 Premises to which Licence Applies (if applicable)

Common Name (if any) LIDDELL POWER STATION  
Premises NEW ENGLAND HIGHWAY MUSWELLBROOK NSW 2333

### A3 Activities to which Licence Applies

Electricity Generating Works  
Coal Works

### A4 Other Activities (if applicable)

Helicopter-related facilities  
Chemical storage  
Operation of Emergency 1.5 MW diesel generator  
Operation of Gas turbine  
Sewage treatment  
Waste storage

### A5 Fee-Based Activity Classifications

**Note** that the fee based activity classification is used to calculate the administrative fee.

Fee-based activity	Activity scale	Unit of measure
Coal works	> 5,000,000.00	T handled
Generation of electrical power from coal	> 4,000.00	Gwh generated

# Monthly Data Summary

## Discharge & Monitoring Point 7

301204 East 6416350 North

Discharge to Air

In the flue gases of unit 1 boiler labelled as "Unit 1 Boiler 1-2 Chimney Stack" on plan no. LD 800474 amended 03 and dated 6/5/2003

Month	Date of Publication	Pollutant	Unit of measure	Sampling / measurement frequency	Averaging period	Data capture %	Lowest sample value	Mean of samples	Highest sample value	EPL Limit
DECEMBER 2017	15/01/2018	Nitrogen Oxides	milligrams per cubic metre	Continuous	One hour	>99%	485.2	710.6	955.6	1500 mg/m <sup>3</sup>
DECEMBER 2017	15/01/2018		parts per million				236.4			346.2
DECEMBER 2017	15/01/2018	Sulphur dioxide	milligrams per cubic metre	Continuous	One hour	>99%	786.6	990.9	1214.7	
DECEMBER 2017	15/01/2018		parts per million				275.2			346.7
DECEMBER 2017	15/01/2018	Opacity - Undifferentiated particles	Percent	Continuous	One hour	>99%	3.9	7.1	17.2	20%
Comments:										

## Annual monitoring of discharges to air

Air emission monitoring, Boiler 1 stack emissions, shown on plan no LD800474 amended 03 and dated 6/5/2003

Month	Date of Publication	Pollutant	Unit of measure	No. of samples required by licence	Samples collected and analysed	Sample value	EPL Limit mg/m <sup>3</sup>			
Jul-17	5/09/2017	Cadmium	milligrams per cubic metre	1	1	<0.0002	1.0			
Jul-17	5/09/2017	Chlorine	milligrams per cubic metre	1	1	0.0	200			
Jul-17	5/09/2017	Copper	milligrams per cubic metre	1	1	0.0029				
Jul-17	5/09/2017	Hazardous substances (Metals)	milligrams per cubic metre	1	1	≤0.014	5			
Jul-17	5/09/2017	Hydrogen chloride	milligrams per cubic metre	1	1	5.7	100			
Jul-17	5/09/2017	Mercury	milligrams per cubic metre	1	1	0.00140	1.0			
Jul-17	5/09/2017	Nitrogen oxides	milligrams per cubic metre	1	1	1	1500			
Jul-17	5/09/2017	Solid particles	milligrams per cubic metre	1	1	24.0	100			
Jul-17	5/09/2017	Sulfuric acid mist and sulfur trioxide	milligrams per cubic metre	1	1	1.100	100			
Jul-17	5/09/2017	Sulphur dioxide	milligrams per cubic metre	1	1	1100				
Jul-17	5/09/2017	Total fluoride	milligrams per cubic metre	1	1	3.9	50			
Jul-17	5/09/2017	Volatile organic compounds	milligrams per cubic metre	1	1	0.012				
Comments:		Monitoring of emission from each of the 4 boilers for the substances in this table is required annually. This table contains the latest results from Boiler 1 tested 25 July 2017.								

# Monthly Data Summary

## Discharge & Monitoring Point 8

301204 East 6416350 North

In the flue gases of unit 2 boiler labelled as "Unit 2 Boiler 1-2 Chimney Stack" on plan no LD800474 amended 03 and dated 6/5/2003

Month	Date of Publication	Pollutant	Unit of measure	Sampling / measurement frequency	Averaging period	Data capture %	Lowest sample value	Mean of samples	Highest sample value	EPL Limit
DECEMBER 2017	15/01/2018	Nitrogen Oxides	milligrams per cubic metre	Continuous	One hour	-				1500 mg/m <sup>3</sup>
DECEMBER 2017	15/01/2018		parts per million							700 ppm
DECEMBER 2017	15/01/2018	Sulphur dioxide	milligrams per cubic metre	Continuous	One hour	-				
DECEMBER 2017	15/01/2018		parts per million							600 ppm
DECEMBER 2017	15/01/2018	Opacity - Undifferentiated particles	Percent	Continuous	One hour	-				20%
Comments:		Unit was out of service for the entire monitoring period								

## Annual monitoring of discharges to air

Air emission monitoring, Boiler 2 stack emissions, shown on plan no LD800474 amended 03 and dated 6/5/2003

Month	Date of Publication	Pollutant	Unit of measure	No. of samples required by licence	Samples collected and analysed	Sample value	EPL Limit mg/m <sup>3</sup>
-	-	Cadmium	milligrams per cubic metre	1	-	-	1.0
-	-	Chlorine	milligrams per cubic metre	1	-	-	200
-	-	Copper	milligrams per cubic metre	1	-	-	
-	-	Hazardous substances (Metals)	milligrams per cubic metre	1	-	-	5
-	-	Hydrogen chloride	milligrams per cubic metre	1	-	-	100
-	-	Mercury	milligrams per cubic metre	1	-	-	1.0
-	-	Nitrogen oxides	milligrams per cubic metre	1	-	-	1500
-	-	Solid particles	milligrams per cubic metre	1	-	-	100
-	-	Sulfuric acid mist and sulfur trioxide	milligrams per cubic metre	1	-	-	100
-	-	Sulphur dioxide	milligrams per cubic metre	1	-	-	
-	-	Total fluoride	milligrams per cubic metre	1	-	-	50
-	-	Volatile organic compounds	milligrams per cubic metre	1	-	-	
Comments:		Unit was out of service for the entire monitoring period					

# Monthly Data Summary

## Discharge & Monitoring Point 9

301204 East 6416350 North

In the flue gases of unit 3 boiler labelled as "Unit 3 Boiler 3-4 Chimney Stack" on plan no LD800474 amended 03 and dated 6/5/2003

Month	Date of Publication	Pollutant	Unit of measure	Sampling / measurement frequency	Averaging period	Data capture %	Lowest sample value	Mean of samples	Highest sample value	EPL Limit
DECEMBER 2017	15/01/2018	Nitrogen Oxides	milligrams per cubic metre	Continuous	One hour	>99%	299.4	494.0	662.6	1500 mg/m <sup>3</sup>
DECEMBER 2017	15/01/2018		parts per million				145.9		240.7	322.8
DECEMBER 2017	15/01/2018	Sulphur dioxide	milligrams per cubic metre	Continuous	One hour	>99%	754.9	938.7	1214.9	
DECEMBER 2017	15/01/2018		parts per million				264.1		328.5	425.1
DECEMBER 2017	15/01/2018	Opacity - Undifferentiated particles	Percent	Continuous	One hour	>99%	0.1	4.6	14.3	20%
Comments:										

## Annual monitoring of discharges to air

Air emission monitoring, Boiler 3 stack emissions, shown on plan no LD800474 amended 03 and dated 6/5/2003

Month	Date of Publication	Pollutant	Unit of measure	No. of samples required by licence	Samples collected and analysed	Sample value	EPL Limit mg/m <sup>3</sup>
Apr-17	19/05/2017	Cadmium	milligrams per cubic metre	1	1	<0.0001	1.0
Apr-17	19/05/2017	Chlorine	milligrams per cubic metre	1	1	0.0	200
Apr-17	19/05/2017	Copper	milligrams per cubic metre	1	1	0.0037	
Apr-17	19/05/2017	Hazardous substances (Metals)	milligrams per cubic metre	1	1	≤0.02	5
Apr-17	19/05/2017	Hydrogen chloride	milligrams per cubic metre	1	1	20.0	100
Apr-17	19/05/2017	Mercury	milligrams per cubic metre	1	1	0.00051	1.0
Apr-17	19/05/2017	Nitrogen oxides	milligrams per cubic metre	1	1	770	1500
Apr-17	19/05/2017	Solid particles	milligrams per cubic metre	1	1	42.0	100
Apr-17	19/05/2017	Sulfuric acid mist and sulfur trioxide	milligrams per cubic metre	1	1	1.700	100
Apr-17	19/05/2017	Sulphur dioxide	milligrams per cubic metre	1	1	1300	
Apr-17	19/05/2017	Total fluoride	milligrams per cubic metre	1	1	9.8	50
Apr-17	19/05/2017	Volatile organic compounds	milligrams per cubic metre	1	1	<0.02	
Comments: Monitoring of emission from each of the 4 boilers for the substances in this table is required annually. This table contains the latest results from Boiler 3 tested 1 December 2017.							

# Monthly Data Summary

## Discharge & Monitoring Point 10

301204 East 6416350 North

In the flue gases of unit 4 boiler labelled as "Unit 4 Boiler 3-4 Chimney Stack" on plan no LD800474 amended 03 and dated 6/5/2003

Month	Date of Publication	Pollutant	Unit of measure	Sampling / measurement frequency	Averaging period	Data capture %	Lowest sample value	Mean of samples	Highest sample value	EPL Limit
DECEMBER 2017	15/01/2018	Nitrogen Oxides	milligrams per cubic metre	Continuous	One hour	>99%	372.2	614.4	787.8	1500 mg/m <sup>3</sup>
DECEMBER 2017	15/01/2018		parts per million				181.3			299.3
DECEMBER 2017	15/01/2018	Sulphur dioxide	milligrams per cubic metre	Continuous	One hour	>99%	730.3	915.7	1159.0	
DECEMBER 2017	15/01/2018		parts per million				255.5			320.4
DECEMBER 2017	15/01/2018	Opacity - Undifferentiated particles	Percent	Continuous	One hour	>99%	4.3	8.0	15.6	20%
<b>Comments:</b>										

## Annual monitoring of discharges to air

Air emission monitoring, Boiler 4 stack emissions, shown on plan no LD800474 amended 03 and dated 6/5/2003

Month	Date of Publication	Pollutant	Unit of measure	No. of samples required by licence	Samples collected and analysed	Sample value	EPL Limit mg/m <sup>3</sup>			
Apr-17	19/05/2017	Cadmium	milligrams per cubic metre	1	1	<0.0001	1.0			
Apr-17	19/05/2017	Chlorine	milligrams per cubic metre	1	1	0.0	200			
Apr-17	19/05/2017	Copper	milligrams per cubic metre	1	1	0.0051				
Apr-17	19/05/2017	Hazardous substances (Metals)	milligrams per cubic metre	1	1	≤0.026	5			
Apr-17	19/05/2017	Hydrogen chloride	milligrams per cubic metre	1	1	18.0	100			
Apr-17	19/05/2017	Mercury	milligrams per cubic metre	1	1	0.0033	1.0			
Apr-17	19/05/2017	Nitrogen oxides	milligrams per cubic metre	1	1	630	1500			
Apr-17	19/05/2017	Solid particles	milligrams per cubic metre	1	1	44.0	100			
Apr-17	19/05/2017	Sulfuric acid mist and sulfur trioxide	milligrams per cubic metre	1	1	1.300	100			
Apr-17	19/05/2017	Sulphur dioxide	milligrams per cubic metre	1	1	1000				
Apr-17	19/05/2017	Total fluoride	milligrams per cubic metre	1	1	11.0	50			
Apr-17	19/05/2017	Volatile organic compounds	milligrams per cubic metre	1	1	<0.2				
<b>Comments:</b> Monitoring of emission from each of the 4 boilers for the substances in this table is required annually. This table contains the latest results from Boiler 4 tested 6 April 2017.										

# Monthly Data Summary

## Discharge & Monitoring Point 12

Discharge to waters <301204 East 6416350 North> Update

Liddell Outfall Canal

Month	Date of Publication	Pollutant	Unit of measure	Sampling / measurement frequency	Samples collected and analysed	Lowest sample value	Mean of samples	Highest sample value	EPL Limit
DECEMBER 2017	15/01/2018	Ammonia	milligrams per litre	Fortnightly	2	0.0	0.1	0.2	-
DECEMBER 2017	15/01/2018	Antimony	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	
DECEMBER 2017	15/01/2018	Arsenic	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	-
DECEMBER 2017	15/01/2018	Barium	milligrams per litre	Fortnightly	2	0.1	0.1	0.1	
DECEMBER 2017	15/01/2018	Beryllium	milligrams per litre	Fortnightly	2	<0.001	0.0	<0.001	-
DECEMBER 2017	15/01/2018	Boron	milligrams per litre	Fortnightly	2	1.1	1.2	1.3	
DECEMBER 2017	15/01/2018	Cadmium	milligrams per litre	Fortnightly	2	<0.0001	0.0	<0.0001	-
DECEMBER 2017	15/01/2018	Chlorine	milligrams per litre	Fortnightly	2	0.1	0.1	0.1	
DECEMBER 2017	15/01/2018	Chromium	milligrams per litre	Fortnightly	2	<0.001	0.0	<0.001	-
DECEMBER 2017	15/01/2018	Chromium (total)	milligrams per litre	Fortnightly	2	<0.01	0.0	<0.01	
DECEMBER 2017	15/01/2018	Cobalt	milligrams per litre	Fortnightly	2	<0.001	0.0	<0.001	-
DECEMBER 2017	15/01/2018	Conductivity	uS/cm	Fortnightly	2	2550.0	2590.0	2630.0	
DECEMBER 2017	15/01/2018	Copper	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	-
DECEMBER 2017	15/01/2018	Flouride	milligrams per litre	Fortnightly	2	1.3	1.3	1.3	
DECEMBER 2017	15/01/2018	Lead	milligrams per litre	Fortnightly	2	<0.001	0.0	<0.001	-
DECEMBER 2017	15/01/2018	Manganese	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	
DECEMBER 2017	15/01/2018	Mercury	milligrams per litre	Fortnightly	2	<0.0001	0.0	<0.0001	-
DECEMBER 2017	15/01/2018	Methylene Blue Active Substance	milligrams per litre	Fortnightly	2	<0.1	0.1	<0.1	
DECEMBER 2017	15/01/2018	Molybdenum	milligrams per litre	Fortnightly	2	0.1	0.1	0.1	-
DECEMBER 2017	15/01/2018	Nickel	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	
DECEMBER 2017	15/01/2018	Nitrogen (total)	milligrams per litre	Fortnightly	2	0.3	0.4	0.4	-
DECEMBER 2017	15/01/2018	Oil and Grease	milligrams per litre	Weekly	4	<5	2.5	<5	
DECEMBER 2017	15/01/2018	pH	pH Units	Fortnightly	31	8.2	8.4	8.5	-
DECEMBER 2017	15/01/2018	Phosphorus	milligrams per litre	Fortnightly	2	<0.01	0.0	0.0	

# Monthly Data Summary

Month	Date of Publication	Pollutant	Unit of measure	Sampling / measurement frequency	Samples collected and analysed	Lowest sample value	Mean of samples	Highest sample value	EPL Limit
DECEMBER 2017	15/01/2018	Selenium	milligrams per litre	Fortnightly	2	<0.01	0.0	<0.01	-
DECEMBER 2017	15/01/2018	Temperature	milligrams per litre	Fortnightly	2	31.7	31.9	32.0	
DECEMBER 2017	15/01/2018	Tin	milligrams per litre	Fortnightly	2	<0.001	0.0	<0.001	-
DECEMBER 2017	15/01/2018	Total Dissolved Solids	milligrams per litre	Fortnightly	2	1650.0	1705.0	1760.0	
DECEMBER 2017	15/01/2018	Total Organic Carbon	milligrams per litre	Fortnightly	2	6.0	6.0	6.0	-
DECEMBER 2017	15/01/2018	TSS	milligrams per litre	Fortnightly	2	3.0	3.5	4.0	
DECEMBER 2017	15/01/2018	Vanadium	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	-
DECEMBER 2017	15/01/2018	Zinc	milligrams per litre	Fortnightly	2	<0.005	0.0	<0.005	
Comments									

# Monthly Data Summary

Comments									
<b>Discharge &amp; Monitoring Point 13</b>									
Discharge to waters <301204 East 6416350 North> Update									
Liddell Oil and Grit Trap									
Month	Date of Publication	Pollutant	Unit of measure	Sampling / measurement frequency	Samples collected and analysed	Lowest sample value	Mean of samples	Highest sample value	EPL Limit
DECEMBER 2017	15/01/2018	Ammonia	milligrams per litre	Fortnightly	2	0.0	0.3	0.5	-
DECEMBER 2017	15/01/2018	Antimony	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	
DECEMBER 2017	15/01/2018	Arsenic	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	-
DECEMBER 2017	15/01/2018	Barium	milligrams per litre	Fortnightly	2	0.1	0.1	0.1	
DECEMBER 2017	15/01/2018	Beryllium	milligrams per litre	Fortnightly	2	<0.001	0.0	<0.001	-
DECEMBER 2017	15/01/2018	Boron	milligrams per litre	Fortnightly	2	1.1	1.1	1.1	
DECEMBER 2017	15/01/2018	Cadmium	milligrams per litre	Fortnightly	2	<0.0001	0.0	<0.0001	-
DECEMBER 2017	15/01/2018	Chlorine	milligrams per litre	Fortnightly	2	0.0	0.0	0.1	
DECEMBER 2017	15/01/2018	Chromium	milligrams per litre	Fortnightly	2	<0.01	0.0	<0.01	-
DECEMBER 2017	15/01/2018	Chromium (total)	milligrams per litre	Fortnightly	2	<0.001	0.0	<0.001	
DECEMBER 2017	15/01/2018	Cobalt	milligrams per litre	Fortnightly	2	<0.001	0.0	<0.001	-
DECEMBER 2017	15/01/2018	Conductivity	uS/cm	Fortnightly	2	2480.0	2510.0	2540.0	
DECEMBER 2017	15/01/2018	Copper	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	-
DECEMBER 2017	15/01/2018	Flouride	milligrams per litre	Fortnightly	2	1.3	1.3	1.4	
DECEMBER 2017	15/01/2018	Lead	milligrams per litre	Fortnightly	2	<0.001	0.0	<0.001	-
DECEMBER 2017	15/01/2018	Manganese	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	
DECEMBER 2017	15/01/2018	Mercury	milligrams per litre	Fortnightly	2	<0.0001	0.0	<0.0001	-
DECEMBER 2017	15/01/2018	Methylene Blue Active Substance	milligrams per litre	Fortnightly	2	<0.1	0.1	<0.1	
DECEMBER 2017	15/01/2018	Molybdenum	milligrams per litre	Fortnightly	2	0.1	0.1	0.1	-
DECEMBER 2017	15/01/2018	Nickel	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	
DECEMBER 2017	15/01/2018	Nitrogen (total)	milligrams per litre	Fortnightly	2	0.3	0.5	0.6	-
DECEMBER 2017	15/01/2018	Oil and Grease	milligrams per litre	Weekly	4	<5	2.5	<5	
DECEMBER 2017	15/01/2018	pH	pH Units	Fortnightly	31	8.0	8.3	8.5	-



# Monthly Data Summary

Month	Date of Publication	Pollutant	Unit of measure	Sampling / measurement frequency	Samples collected and analysed	Lowest sample value	Mean of samples	Highest sample value	EPL Limit
DECEMBER 2017	15/01/2018	Phosphorus	milligrams per litre	Fortnightly	2	0.0	0.0	0.0	
DECEMBER 2017	15/01/2018	Selenium	milligrams per litre	Fortnightly	2	<0.01	0.0	<0.01	-
DECEMBER 2017	15/01/2018	Temperature	milligrams per litre	Fortnightly	2	26.0	26.6	27.2	
DECEMBER 2017	15/01/2018	Tin	milligrams per litre	Fortnightly	2	<0.001	0.0	0.0	-
DECEMBER 2017	15/01/2018	Total Dissolved Solids	milligrams per litre	Fortnightly	2	1750.0	1780.0	1810.0	
DECEMBER 2017	15/01/2018	Total Organic Carbon	milligrams per litre	Fortnightly	2	6.0	6.5	7.0	-
DECEMBER 2017	15/01/2018	TSS	milligrams per litre	Fortnightly	2	3.0	5.0	7.0	
DECEMBER 2017	15/01/2018	Vanadium	milligrams per litre	Fortnightly	2	<0.01	0.0	0.0	-
DECEMBER 2017	15/01/2018	Zinc	milligrams per litre	Fortnightly	2	<0.005	0.0	0.0	
Comments									

# Monthly Data Summary

## Compliance with Licence

Licence condition number not complied with

N/A - Voluntary Report

Summary of particulars of the non-compliance **(NO MORE THAN 50 WORDS)**

Dust emissions from the south west pond of the Liddell Ash Dam blowing overland towards Bayswater Station.

If required, further details on particulars of non-compliance

The dust emitted from an approximate 9.5ha section of the ash dam that required drying to enable capping and rehabilitation in accordance with the approved Rehabilitation Management Plan.

Date(s) when the non-compliance occurred, if applicable

20/12/2017

If applicable, registration numbers of any vehicles or the chassis number of any mobile plant involved in the non-compliance

N/A

Cause of non-compliance

A dust suppressant polymer had been previously applied to the ash surface to prevent dusting but this had been damaged during a large hail storm. At the time of the event ambient temperatures reached 41 degrees Celsius with wind speeds averaging 50km/hr and gusting to 80km/hr.

Action taken or that will be taken to mitigate any adverse effects of the non-compliance

High wind alarms triggered for all truck movements to cease on the ash dam in accordance with the Dust Trigger Action Response Plan, leaving only water carts operating.

EPA NSW were voluntarily notified of the dust incident.

EPA NSW inspected the site the same afternoon and all dust management controls available were in place.

Action taken or that will be taken to prevent a recurrence of the non-compliance

Capping of the South West cell commenced on 21 December 2017 as per the plan, and civil contractor mobilized to continue capping during the Christmas and New Years break. The methodology for capping was revised to put a thin cap initially on the ash to prevent a reoccurrence. As of 10 January, approximately three quarters of the South West Pond has been capped.