



# Environmental Monitoring Report

## Broadwater Power Plant 117 Pacific Highway Broadwater NSW

Licencee Cape Byron Management Pty Ltd  
Address 117 Pacific Highway Broadwater NSW  
EPL No 20425 <http://www.epa.nsw.gov.au/prpoeoapp/>

This data is published as required under section 66(6) of the *Protection of the Environment Operations Act 1997*

Sampling Point:

Licencee

Location

EPL No

Parameters Monitored

Frequency & Method

Limits

**Monitoring Point 1 - No 12 Boiler Stack Emissions**

Cape Byron Management Pty Ltd

Broadwater Cogeneration Power Plant

20425

<http://www.epa.nsw.gov.au/prpoeoapp/>

see individual parameters in table

Annually in accordance with EPA protocols

see individual parameters in table



**RESULTS TABLE**

	AE11619	AE11692	
Report Number	18-Sep-18	14-Nov-18	
Sampling Date	15-Oct-18	26-Nov-18	
Date Received	19-Dec-18	23-Jul-19	
Date Published			

Measured Parameters dry @ STP and corrected to 7% O <sub>2</sub>	Units	Concentration Limit			
Average stack gas temperature	°C	Not Applicable	87.9	86.0	
Average velocity at sampling plane	m/s	Not Applicable	9.2	8.8	
Gas Volumetric Flowrate	m <sup>3</sup> /sec	Not Applicable	23.6	43.3	
Dry Gas Density	kg/m <sup>3</sup>	Not Applicable	1.4	1.3	
Molecular Weight of Stack Gases	g/g mole	Not Applicable	30.4	30.0	
Moisture content	%	Not Applicable	28.9	20.6	
Concentration of carbon dioxide	%	Not Applicable	13.4	9.7	
Total Solid Particles	mg/m <sup>3</sup>	<b>100</b>	155.0	38.9	
Sulphuric Acid Mist & Sulphur Trioxide as SO <sub>3</sub>	mg/m <sup>3</sup>	<b>12</b>	16.4	10.9	
Nitrogen Oxides (NO <sub>x</sub> )	mg/m <sup>3</sup>	<b>500</b>	300.0	189.0	

**Sampling Point:**

Licencee  
 Location  
 EPL No  
 Parameter/s Monitored  
 Frequency & Method  
 Limits

**Monitoring Point 2 - No 1 Cogeneration Boiler Stack Emissions**

Cape Byron Management Pty Ltd  
 Broadwater Cogeneration Power Plant  
 20425 <http://www.epa.nsw.gov.au/prpoeoapp/>  
 see individual parameters in table  
 Quarterly in accordance with EPA protocols  
 see individual parameters in table

**RESULTS TABLE**

	AE11619	AE11748	AE11813	AE11951
Report Number	18-Sep-18	08-Jan-19	29-Jan-19	07-May-19
Sampling Date	15-Oct-18	15-Jan-19	18-Feb-19	05-Jun-19
Date Received	19-Dec-18	18-Jan-19	30-Apr-19	18-Jun-19
Date Published				

Measured Parameters dry @ STP and corrected to 7% O <sub>2</sub>	Units	Concentration Limit				
Average stack gas temperature	°C	Not Applicable	71.0	64.0	60.0	63.3
Average velocity at sampling plane	m/s	Not Applicable	15.5	11.3	10.7	12.5
Dry Gas Volumetric Flowrate	m <sup>3</sup> /sec	Not Applicable	61.5	48.2	46.6	53.4
Dry Gas Density	kg/m <sup>3</sup>	Not Applicable	1.4	1.4	1.4	1.4
Molecular Weight of Stack Gases	g/g mole	Not Applicable	30.7	30.2	30.2	30.2
Moisture content	%	Not Applicable	21.6	16.7	16.2	17.3
Concentration of carbon dioxide	%	Not Applicable	13.8	11.6	11.0	11.4
Total Solid Particles	mg/m <sup>3</sup>	100.0	95.7	19.6	32.4	39.4
Sulphuric Acid Mist & Sulphur Trioxide as SO <sub>3</sub>	mg/m <sup>3</sup>	12.0	10.1	0.9	1.9	11.7
Nitrogen Oxides (NO <sub>x</sub> )	mg/m <sup>3</sup>	500.0	322.0	172.0	142.0	142.0

**Sampling Point:** **Monitoring Point 3 - Ambient Air Monitoring**  
 Licencee Cape Byron Management Pty Ltd  
 Location Broadwater Cogeneration Power Plant  
 EPL No 20425 <http://www.epa.nsw.gov.au/prpoeoapp/>  
 Parameters Monitored Particulates - Deposited Matter  
 Monitoring Frequency Continuous with sample results extrapolated from sample period of 30 ± 2 days  
 Limits Not Applicable  
 Comments Laboratory Analysis



Date Sample Collected	Date Received	Date Published	Results (g/m <sup>2</sup> /month)	Notes
3-Jan-19	10-Jan-19	18-Jan-19	1.88	Beetles/org.matter
5-Feb-19	25-Feb-19	29-Mar-19	1.31	Yellow/org.matter
7-Mar-19	13-Mar-19	29-Mar-19	1.89	Mosquitoes
9-Apr-19	15-Apr-19	30-Apr-19	1.20	
8-May-19	15-May-19	15-May-19	1.17	Org.matter
7-Jun-19	15-Jun-19	18-Jun-19	0.85	Org.matter
9-Jul-19	12-Jul-19	23-Jul-19	0.26	
8-Aug-19	16-Aug-19	22-Aug-19	1.69	Fine and large org.matter

**Sampling Point:** **Monitoring Point 3 - Ambient Air Monitoring**  
 Licencee Cape Byron Management Pty Ltd  
 Location Broadwater Cogeneration Power Plant  
 EPL No 20425 <http://www.epa.nsw.gov.au/prpoeoapp/>  
 Parameters Monitored PM10  
 Monitoring Frequency Sampling for 24 hours every 6 Days when site is operating  
 Limits Not Applicable  
 Comments Laboratory Analysis



Date Sample Collected	Date Received	Date Published	Results (ug/m <sup>3</sup> )	Notes
2-Jan-19	12-Jan-19	18-Jan-19	15	
8-Jan-19	4-Mar-19	29-Mar-19	45	
14-Jan-19	4-Mar-19	29-Mar-19	28	
20-Jan-19	4-Mar-19	29-Mar-19	35	
26-Jan-19	4-Mar-19	29-Mar-19	11	
1-Feb-19	4-Mar-19	29-Mar-19	20	
7-Feb-19	4-Mar-19	29-Mar-19	21	
13-Feb-19	4-Mar-19	29-Mar-19	38	
19-Feb-19	4-Mar-19	29-Mar-19	22	
25-Feb-19	4-Mar-19	29-Mar-19	4	
3-Mar-19	26-Apr-19	30-Apr-19	25	
9-Mar-19	26-Apr-19	30-Apr-19	11	
15-Mar-19	26-Apr-19	30-Apr-19	16	
21-Mar-19	26-Apr-19	30-Apr-19	12	
27-Mar-19	26-Apr-19	30-Apr-19	19	
2-Apr-19	26-Apr-19	30-Apr-19	7	
8-Apr-19	26-Apr-19	30-Apr-19	13	
14-Apr-19	15-May-19	18-Jun-19	5	
20-Apr-19	15-May-19	18-Jun-19	20	
26-Apr-19	15-May-19	18-Jun-19	24	
2-May-19	15-May-19	18-Jun-19	25	
8-May-19	13-Jun-19	18-Jun-19	11	
14-May-19	13-Jun-19	18-Jun-19	11	
20-May-19	13-Jun-19	18-Jun-19	12	
26-May-19	13-Jun-19	18-Jun-19	10	
1-Jun-19	13-Jun-19	18-Jun-19	18	
7-Jun-19	12-Jul-19	23-Jul-19	12	
13-Jun-19	12-Jul-19	23-Jul-19	21	
19-Jun-19	12-Jul-19	23-Jul-19	11	
25-Jun-19	12-Jul-19	23-Jul-19	12	
1-Jul-19	12-Jul-19	23-Jul-19	13	
7-Jul-19	14-Aug-19	22-Aug-19	4	
13-Jul-19	14-Aug-19	22-Aug-19	18	
19-Jul-19	14-Aug-19	22-Aug-19	18	
25-Jul-19	14-Aug-19	22-Aug-19	22	
31-Jul-19	14-Aug-19	22-Aug-19	7	

**Sampling Point: Monitoring Point 4 - Ambient Air Monitoring**

Licencee Cape Byron Management Pty Ltd  
Location Broadwater Cogeneration Power Plant  
EPL No 20425 <http://www.epa.nsw.gov.au/prpoeoapp/>  
Parameter Particulates - Deposited Matter  
Frequency Continuous with sample results extrapolated  
from sample period of 30 ± 2 days  
Limits Not Applicable  
Comments Laboratory Analysis



Date Sample Collected	Date Received	Date Published	Results (g/m <sup>2</sup> /month)	Notes
3-Jan-19	10-Jan-19	18-Jan-19	1.13	Org.matter
5-Feb-19	25-Feb-19	29-Mar-19	1.08	Org.matter
7-Mar-19	13-Mar-19	29-Mar-19	2.28	
9-Apr-19	15-Apr-19	30-Apr-19	1.81	
8-May-19	15-May-19	15-May-19	0.40	Org.matter
7-Jun-19	15-Jun-19	18-Jun-19	0.68	Org.matter
9-Jul-19	12-Jul-19	23-Jul-19	0.83	
8-Aug-19	16-Aug-19	22-Aug-19	1.70	Large org.matter

**Sampling Point:** Monitoring Point 5 - Ambient Air Monitoring  
 Licencee Cape Byron Management Pty Ltd  
 Location Broadwater Power Plant Fuel Stockpile  
 EPL No 20425 <http://www.epa.nsw.gov.au/prpoeoapp/>  
 Parameters Monitored Particulates - Deposited Matter  
 Monitoring Frequency Continuous with sample results extrapolated from  
 sample period of 30 ± 2 days  
 Limits Not Applicable  
 Comments Laboratory Analysis



Date Sample Collected	Date Received	Date Published	Results (g/m <sup>2</sup> /month)	Notes
3-Jan-19	10-Jan-19	18-Jan-19	2.62	Org.matter
5-Feb-19	25-Feb-19	29-Mar-19	3.23	Brown/org.matter
7-Mar-19	13-Mar-19	29-Mar-19	3.46	
9-Apr-19	15-Apr-19	30-Apr-19	1.28	
8-May-19	15-May-19	15-May-19	1.04	Org.matter
7-Jun-19	15-Jun-19	18-Jun-19	1.15	Org.matter
9-Jul-19	12-Jul-19	23-Jul-19	0.52	
8-Aug-19	16-Aug-19	22-Aug-19	1.44	Large org.matter, cloudy

**Sampling Point: Monitoring Point 6 - O<sub>2</sub> Monitoring No 1 Cogeneration Boiler**

Licencee Cape Byron Management Pty Ltd  
 Location Broadwater Cogeneration Power Plant  
 EPL No 20425 <http://www.epa.nsw.gov.au/brpoeoapp/>  
 Parameters Monitored Oxygen  
 Monitoring Frequency Continuous Online Sampling  
 Limit No Limits Prescribed



The results in the table provide a fortnightly summary of the minimum, maximum and mean daily values for the period indicated

Comments

MONITORING PERIOD			Oxygen (%)			Notes
Date Start	Date Finish	Date Published	Minimum Value	Mean Value	Maximum Value	
31-Dec-18	13-Jan-19	18-Jan-19	0.00	7.18	21.30	
14-Jan-19	27-Jan-19	29-Mar-19	0.00	7.68	21.20	
28-Jan-19	10-Feb-19	29-Mar-19	0.02	7.61	21.10	
11-Feb-19	24-Feb-19	29-Mar-19	1.30	7.04	21.00	
25-Feb-19	10-Mar-19	29-Mar-19	3.80	6.09	9.10	
11-Mar-19	24-Mar-19	30-Apr-19	0.00	7.77	21.10	Plant Shutdown 24-03-19 to 14-04-19
25-Mar-19	7-Apr-19	30-Apr-19	n/a	n/a	n/a	
8-Apr-19	21-Apr-19	15-Apr-19	4.10	6.92	21.90	
22-Apr-19	5-May-19	15-Apr-19	1.60	6.58	21.20	
6-May-19	19-May-19	18-Jun-19	2.10	5.65	21.00	
20-May-19	2-Jun-19	18-Jun-19	2.70	15.06	21.40	
3-Jun-19	16-Jun-19	23-Jul-19	0.00	8.62	21.50	
17-Jun-19	30-Jun-19	23-Jul-19	2.70	10.15	21.40	
1-Jul-19	14-Jul-19	22-Aug-19	0.60	5.22	11.50	
15-Jul-19	28-Jul-19	22-Aug-19	0.40	9.44	21.40	



**Sampling Point:** Monitoring Point 7 - O<sub>2</sub> Monitoring No 12 Boiler  
 Licencee Cape Byron Management Pty Ltd  
 Location Broadwater Cogeneration Power Plant  
 EPL No 20425 <http://www.environment.nsw.gov.au/>  
 Parameters Monitored Oxygen  
 Monitoring Frequency Continuous Online Sampling  
 Limit No Limits Prescribed



The results in the table provide a fortnightly summary of the minimum, maximum and mean daily values for the period indicated

Comments

MONITORING PERIOD			Oxygen (%)			Notes
Date Start	Date Finish	Date Published	Minimum Value	Maximum Value	Mean Value	
31-Dec-18	13-Jan-19	18-Jan-19	No Data	No Data	No Data	Boiler Not Operating
14-Jan-19	27-Jan-19	29-Mar-19	No Data	No Data	No Data	Boiler Not Operating
28-Jan-19	10-Feb-19	29-Mar-19	No Data	No Data	No Data	Boiler Not Operating
11-Feb-19	24-Feb-19	29-Mar-19	No Data	No Data	No Data	Boiler Not Operating
25-Feb-19	10-Mar-19	29-Mar-19	No Data	No Data	No Data	Boiler Not Operating
11-Mar-19	24-Mar-19	30-Apr-19	No Data	No Data	No Data	Boiler Not Operating
25-Mar-19	7-Apr-19	30-Apr-19	No Data	No Data	No Data	Boiler Not Operating
8-Apr-19	21-Apr-19	15-Apr-19	No Data	No Data	No Data	Boiler Not Operating
22-Apr-19	5-May-19	15-Apr-19	No Data	No Data	No Data	Boiler Not Operating
6-May-19	19-May-19	18-Jun-19	No Data	No Data	No Data	Boiler Not Operating
20-May-19	2-Jun-19	18-Jun-19	No Data	No Data	No Data	Boiler Not Operating
3-Jun-19	16-Jun-19	23-Jul-19	No Data	No Data	No Data	Boiler Not Operating
17-Jun-19	30-Jun-19	23-Jul-19	No Data	No Data	No Data	Boiler Not Operating
1-Jul-19	14-Jul-19	22-Aug-19	No Data	No Data	No Data	Boiler Not Operating
15-Jul-19	28-Jul-19	22-Aug-19	0.02	10.17	21.00	Boiler Started 17-07-19

**Sampling Point:** Monitoring Point 8 - Cogeneration Cooling Water Discharge  
**Licencee:** Cape Byron Management Pty Ltd  
**Location:** Broadwater Cogeneration Power Plant  
**EPL No:** 20425 <http://www.epa.nsw.gov.au/prpocoeapp/>  
**Parameters Monitored:** Temperature & Volume  
**Monitoring Frequency:** Continous online  
**Limits:** Seet Table  
**Comments:** No result may exceed the maximum limit.



MONITORING PERIOD			Temperature (°C)			Volume (kL/day)			Notes
			Limit/s	Maximum	41	Limit/s	Maximum	155520	
Date Start	Date Finish	Date Published	Min Temp	Mean Temp	Max Temp	Minimum Daily Discharge	Mean Daily Discharge	Maximum Daily Discharge	
31-Dec-18	13-Jan-19	18-Jan-19	27	38	41	75737	130769	137184	
14-Jan-19	27-Jan-19	29-Mar-19	28	38	41	58541	128499	137184	
28-Jan-19	10-Feb-19	29-Mar-19	28	38	41	136136	137053	137184	41.1 degrees recorded for 6 minutes due to a 4-way valve change
11-Feb-19	24-Feb-19	29-Mar-19	26	38	41	136041	137033	137184	
25-Feb-19	10-Mar-19	29-Mar-19	29	20	37	41	137128	137184	
11-Mar-19	24-Mar-19	30-Apr-19	20	37	41	84883	130380	137184	Plant shutdown 24-03-19 to 14-04-19
25-Mar-19	7-Apr-19	30-Apr-19	21	25	28	62400	99792	137184	Cooling water shutdown 26-03-19 - 14-04-19
8-Apr-19	21-Apr-19	15-Apr-19	22	35	40	69402	124841	137184	
22-Apr-19	5-May-19	15-Apr-19	22	33	39	136517	137128	137184	
6-May-19	19-May-19	18-Jun-19	22	31	33	136946	137160	137184	
20-May-19	2-Jun-19	18-Jun-19	15	24	33	36106	111072	137184	
3-Jun-19	16-Jun-19	23-Jul-19	9	26	34	25865	121342	137184	
17-Jun-19	30-Jun-19	23-Jul-19	18	27	36	68592	126546	137184	
1-Jul-19	14-Jul-19	22-Aug-19	22	27	34	136041	136934	137184	
15-Jul-19	28-Jul-19	22-Aug-19	15	25	34	68592	126447	137184	

**Sampling Point: Monitoring Point 9 - Cogeneration Cooling Water Inlet**

Licencee Cape Byron Management Pty Ltd  
 Location Broadwater Cogeneration Power Plant  
 EPL No 20425 <http://www.epa.nsw.gov.au/prpocapp/>  
 Parameters Monitored [Temperature](#)  
 Monitoring Frequency Continuous online (by calculation)  
 Limits Not Applicable - background data only



MONITORING PERIOD			Temperature (°C)			Volume (kL/day)			Notes
Date Start	Date Finish	Date Published	Minimum Background Temperature	Mean Background Temperature	Maximum Background Temperature	Minimum Daily Intake	Mean Daily Intake	Maximum Daily Intake	
31-Dec-18	13-Jan-19	18-Jan-19	27.3	28.5	40.0	75737	130769	137184	
14-Jan-19	27-Jan-19	29-Mar-19	25.0	29.5	43.1	58541	128499	137184	
28-Jan-19	10-Feb-19	29-Mar-19	28.7	29.6	30.6	136136	137053	137184	
11-Feb-19	24-Feb-19	29-Mar-19	25.3	28.0	30.5	136041	137033	137184	
25-Feb-19	10-Mar-19	29-Mar-19	24.9	26.6	28.6	136517	137128	137184	
11-Mar-19	24-Mar-19	30-Apr-19	21.1	28.2	29.4	84883	130380	137184	
25-Mar-19	7-Apr-19	30-Apr-19	28.3	28.6	29.0	62400	99792	137184	Plant shutdown 24-03-19 to 14-04-19
8-Apr-19	21-Apr-19	15-Apr-19	23.0	23.8	24.6	69402	124841	137184	Cooling water shutdown 26-03-19
22-Apr-19	5-May-19	15-Apr-19	22.8	23.8	24.7	136517	137128	137184	Plant Shutdown to 14-04-19
6-May-19	19-May-19	18-Jun-19	20.1	21.5	23.2	136946	137160	137184	
20-May-19	2-Jun-19	18-Jun-19	17.5	20.3	22.0	36106	111072	137184	
3-Jun-19	16-Jun-19	23-Jul-19	10.2	17.8	26.8	25865	121342	137184	
17-Jun-19	30-Jun-19	23-Jul-19	17.8	20.1	22.0	68592	126546	137184	
1-Jul-19	14-Jul-19	22-Aug-19	16.2	17.2	18.1	136041	136934	137184	
15-Jul-19	28-Jul-19	22-Aug-19	15.5	19.3	22.0	68592	126447	137184	

**Sampling Point:** Monitoring Point 10 - Stockpile Sediment Pond West  
 Licencee Cape Byron Management Pty Ltd  
 Location Broadwater Power Plant Fuel Stockpile  
 EPL No 20425 <http://www.epa.nsw.gov.au/prpoeoapp/>  
 Parameter/s Monitored See Table  
 Frequency & Method Monthly Grab Sample  
 Limit/s None Prescribed



PARAMETERS MEASURED								Notes
Date Sampled	Date Received	Date Published	BOD <sub>5</sub> (mg/L)	TSS (mg/L)	pH	Nitrogen (mg/L)	Phosphorus (mg/L)	
7-Dec-18	7-Dec-18	18-Jan-19	6.0	18.0	6.7	0.5	0.8	
21-Jan-19	21-Jan-19	29-Mar-19	1.8	6.0	6.7	0.8	0.6	
27-Feb-19	28-Feb-19	29-Mar-19	1.2	<1	7.0	0.8	0.3	
22-Mar-19	29-Mar-19	30-Apr-19	1.8	9.0	6.9	1.2	0.3	
15-Apr-19	26-Apr-19	30-Apr-19	8.3	20.0	6.3	0.7	0.7	
13-May-19	20-May-19	18-Jun-19	3.4	8.0	8.4	1.3	0.3	
19-Jun-19	28-Jun-19	23-Jul-19	1.7	12.0	6.8	0.9	0.6	
25-Jul-19	31-Jul-19	22-Aug-19	2.6	20.0	7.1	1.2	0.4	

**Sampling Point:** Monitoring Point 11 - Stockpile Sediment Pond East  
 Licence: Cape Byron Management Pty Ltd  
 Location: Broadwater Power Plant Fuel Stockpile  
 EPL No: 20425 <http://www.epa.nsw.gov.au/prpoeoapp/>  
 Parameter/s Monitored: See Table  
 Frequency & Method: Monthly Grab Sample  
 Limit/s: None Prescribed



PARAMETERS MEASURED								
Date Sampled	Date Received	Date Published	BOD <sub>5</sub> (mg/L)	TSS (mg/L)	pH	Nitrogen (mg/L)	Phosphorus (mg/L)	Notes
7-Dec-18	7-Dec-18	18-Jan-19	5.4	19.0	7.4	1.5	0.7	
21-Jan-19	21-Jan-19	29-Mar-19	3.8	21.0	7.5	2.3	0.6	
27-Feb-19	28-Feb-19	29-Mar-19	5.7	26.0	7.7	2.5	0.3	
22-Mar-19	29-Mar-19	30-Apr-19	10.1	26.0	8.8	3.3	0.5	
15-Apr-19	26-Apr-19	30-Apr-19	5.9	10.0	7.0	1.8	0.5	
13-May-19	20-May-19	18-Jun-19	1.7	8.0	6.9	0.8	0.6	
19-Jun-19	28-Jun-19	23-Jul-19	3.6	16.0	7.4	1.5	0.3	
25-Jul-19	31-Jul-19	22-Aug-19	4.4	82.0	6.3	0.9	1.2	

**Sampling Point:** Monitoring Point 12 - Reverse Osmosis Sidestream  
**Licencee:** Cape Byron Management Pty Ltd  
**Location:** Broadwater Cogeneration Power Plant  
**EPL No:** 20425 <http://www.epa.nsw.gov.au/brpoeoapp/>  
**Parameters Measured:** See Table  
**Frequency & Method:** Biannual Grab Sample  
**Licence Limits:** Not Prescribed



Pollutants	Units	Date Sampled	Date Received	Date Published	Results	Notes
Aluminium	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	1.636	
		19-Jun-19	28-Jun-19	23-Jul-19	0.456	
Ammonia	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	0.055	
		19-Jun-19	28-Jun-19	23-Jul-19	1.487	
Arsenic	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	0.010	
		19-Jun-19	28-Jun-19	23-Jul-19	0.002	
Barium	mg/l	22-Mar-19	04-Apr-19	23-Jul-19	0.095	
		19-Jun-19	28-Jun-19	23-Jul-19	0.132	
Bicarbonate	CaCO <sub>3</sub> /kg	22-Mar-19	04-Apr-19	30-Apr-19	42.000	
		19-Jun-19	28-Jun-19	23-Jul-19	0.132	
Cadmium	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	<0.001	
		19-Jun-19	28-Jun-19	23-Jul-19	<0.001	
Calcium	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	4.970	
		19-Jun-19	28-Jun-19	23-Jul-19	23.212	
Chloride	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	13.800	
		19-Jun-19	28-Jun-19	23-Jul-19	168.578	
Chromium	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	0.002	
		19-Jun-19	28-Jun-19	23-Jul-19	0.001	
Conductivity	dS/m	22-Mar-19	04-Apr-19	30-Apr-19	0.142	
		19-Jun-19	28-Jun-19	23-Jul-19	0.963	
Copper	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	0.001	
		19-Jun-19	28-Jun-19	23-Jul-19	<0.001	
Hardness (as calcium)	CaCO <sub>3</sub> /kg	22-Mar-19	04-Apr-19	30-Apr-19	29.541	
		19-Jun-19	28-Jun-19	23-Jul-19	142.399	
Iron	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	39.674	
		19-Jun-19	28-Jun-19	23-Jul-19	9.331	
Lead	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	<0.001	
		19-Jun-19	28-Jun-19	23-Jul-19	<0.001	
Magnesium	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	4.160	
		19-Jun-19	28-Jun-19	23-Jul-19	20.505	
Manganese	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	0.085	
		19-Jun-19	28-Jun-19	23-Jul-19	0.106	
Mercury	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	<0.0005	
		19-Jun-19	28-Jun-19	23-Jul-19	<0.0005	
Nickel	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	<0.001	
		19-Jun-19	28-Jun-19	23-Jul-19	<0.001	
Nitrate	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	0.479	
		19-Jun-19	28-Jun-19	23-Jul-19	0.033	
Nitrite	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	0.009	
		19-Jun-19	28-Jun-19	23-Jul-19	0.048	
Orthophosphate	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	0.015	
		19-Jun-19	28-Jun-19	23-Jul-19	0.015	
Potassium	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	3.650	
		19-Jun-19	28-Jun-19	23-Jul-19	14.392	
Selenium	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	<0.002	
		19-Jun-19	28-Jun-19	23-Jul-19	<0.002	
Silica (total)	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	7.009	
		19-Jun-19	28-Jun-19	23-Jul-19	26.875	
Silver	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	<0.001	
		19-Jun-19	28-Jun-19	23-Jul-19	<0.001	
Sodium	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	17.900	
		19-Jun-19	28-Jun-19	23-Jul-19	122.132	
Sodium Adsorption Ratio	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	1.432	
		19-Jun-19	28-Jun-19	23-Jul-19	4.450	
Sulfate	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	6.870	
		19-Jun-19	28-Jun-19	23-Jul-19	57.568	
Total Dissolved Salts	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	96.560	
		19-Jun-19	28-Jun-19	23-Jul-19	65660.800	
Total Organic Carbon	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	24.142	
		19-Jun-19	28-Jun-19	23-Jul-19	26.300	
Total Suspended Solids	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	<1	
		19-Jun-19	28-Jun-19	23-Jul-19	<1	
Zinc	mg/l	22-Mar-19	04-Apr-19	30-Apr-19	0.023	
		19-Jun-19	28-Jun-19	23-Jul-19	0.009	
pH		22-Mar-19	04-Apr-19	30-Apr-19	7.250	
		19-Jun-19	28-Jun-19	23-Jul-19	7.570	

**Sampling Point:** Rain gauge  
 Licence Cape Byron Management Pty Ltd  
 Location Broadwater Cogeneration Power Plant  
 EPL No 20425  
 Parameter/s Monitored Rainfall  
 Frequency & Method Continuous Auto Sampler



TIPPING GAUGE CONTINUOUS RAINFALL MONITORING					
Period From		Period To		Daily Rain	
Date	Time	Date	Time	Total (mm)	Max Intensity (mm/min)
Monday, 31 December 2018	9:01am	Tuesday, 1 January 2019	9:00am	0	0
Tuesday, 1 January 2019	9:01am	Wednesday, 2 January 2019	9:00am	0	0
Wednesday, 2 January 2019	9:01am	Thursday, 3 January 2019	9:00am	0	0
Thursday, 3 January 2019	9:01am	Friday, 4 January 2019	9:00am	0	0
Friday, 4 January 2019	9:01am	Saturday, 5 January 2019	9:00am	0	0
Saturday, 5 January 2019	9:01am	Sunday, 6 January 2019	9:00am	0	0
Sunday, 6 January 2019	9:01am	Monday, 7 January 2019	9:00am	6.2	0.8
Monday, 7 January 2019	9:01am	Tuesday, 8 January 2019	9:00am	0	0
Tuesday, 8 January 2019	9:01am	Wednesday, 9 January 2019	9:00am	0	0
Wednesday, 9 January 2019	9:01am	Thursday, 10 January 2019	9:00am	0	0
Thursday, 10 January 2019	9:01am	Friday, 11 January 2019	9:00am	0	0
Friday, 11 January 2019	9:01am	Saturday, 12 January 2019	9:00am	0	0
Saturday, 12 January 2019	9:01am	Sunday, 13 January 2019	9:00am	0	0
Sunday, 13 January 2019	9:01am	Monday, 14 January 2019	9:00am	0	0
Monday, 14 January 2019	9:01am	Tuesday, 15 January 2019	9:00am	0	0
Tuesday, 15 January 2019	9:01am	Wednesday, 16 January 2019	9:00am	0	0
Wednesday, 16 January 2019	9:01am	Thursday, 17 January 2019	9:00am	0	0
Thursday, 17 January 2019	9:01am	Friday, 18 January 2019	9:00am	0	0
Friday, 18 January 2019	9:01am	Saturday, 19 January 2019	9:00am	0	0
Saturday, 19 January 2019	9:01am	Sunday, 20 January 2019	9:00am	0	0
Sunday, 20 January 2019	9:01am	Monday, 21 January 2019	9:00am	0	0
Monday, 21 January 2019	9:01am	Tuesday, 22 January 2019	9:00am	0	0
Tuesday, 22 January 2019	9:01am	Wednesday, 23 January 2019	9:00am	0	0
Wednesday, 23 January 2019	9:01am	Thursday, 24 January 2019	9:00am	9.8	1.2
Thursday, 24 January 2019	9:01am	Friday, 25 January 2019	9:00am	2.2	0.4
Friday, 25 January 2019	9:01am	Saturday, 26 January 2019	9:00am	0	0
Saturday, 26 January 2019	9:01am	Sunday, 27 January 2019	9:00am	0	0
Sunday, 27 January 2019	9:01am	Monday, 28 January 2019	9:00am	0	0
Monday, 28 January 2019	9:01am	Tuesday, 29 January 2019	9:00am	0	0
Tuesday, 29 January 2019	9:01am	Wednesday, 30 January 2019	9:00am	0	0
Wednesday, 30 January 2019	9:01am	Thursday, 31 January 2019	9:00am	0	0
Thursday, 31 January 2019	9:01am	Friday, 1 February 2019	9:00am	0	0
Friday, 1 February 2019	9:01am	Saturday, 2 February 2019	9:00am	3.2	0.4
Saturday, 2 February 2019	9:01am	Sunday, 3 February 2019	9:00am	1.4	0.4
Sunday, 3 February 2019	9:01am	Monday, 4 February 2019	9:00am	0.2	0.2
Monday, 4 February 2019	9:01am	Tuesday, 5 February 2019	9:00am	0.2	0.2
Tuesday, 5 February 2019	9:01am	Wednesday, 6 February 2019	9:00am	1.4	0.4
Wednesday, 6 February 2019	9:01am	Thursday, 7 February 2019	9:00am	1	0.2
Thursday, 7 February 2019	9:01am	Friday, 8 February 2019	9:00am	0	0
Friday, 8 February 2019	9:01am	Saturday, 9 February 2019	9:00am	0	0
Saturday, 9 February 2019	9:01am	Sunday, 10 February 2019	9:00am	0	0
Sunday, 10 February 2019	9:01am	Monday, 11 February 2019	9:00am	0	0
Monday, 11 February 2019	9:01am	Tuesday, 12 February 2019	9:00am	0	0
Tuesday, 12 February 2019	9:01am	Wednesday, 13 February 2019	9:00am	0	0
Wednesday, 13 February 2019	9:01am	Thursday, 14 February 2019	9:00am	0.2	0.2
Thursday, 14 February 2019	9:01am	Friday, 15 February 2019	9:00am	3.4	0.2
Friday, 15 February 2019	9:01am	Saturday, 16 February 2019	9:00am	0	0
Saturday, 16 February 2019	9:01am	Sunday, 17 February 2019	9:00am	0.4	0.2
Sunday, 17 February 2019	9:01am	Monday, 18 February 2019	9:00am	0	0
Monday, 18 February 2019	9:01am	Tuesday, 19 February 2019	9:00am	0	0
Tuesday, 19 February 2019	9:01am	Wednesday, 20 February 2019	9:00am	0	0
Wednesday, 20 February 2019	9:01am	Thursday, 21 February 2019	9:00am	1.8	0.2
Thursday, 21 February 2019	9:01am	Friday, 22 February 2019	9:00am	14.8	1.4
Friday, 22 February 2019	9:01am	Saturday, 23 February 2019	9:00am	14.6	1.2
Saturday, 23 February 2019	9:01am	Sunday, 24 February 2019	9:00am	9.6	0.6
Sunday, 24 February 2019	9:01am	Monday, 25 February 2019	9:00am	2	0.4
Monday, 25 February 2019	9:01am	Tuesday, 26 February 2019	9:00am	1.8	0.6
Tuesday, 26 February 2019	9:01am	Wednesday, 27 February 2019	9:00am	0.2	0.2
Wednesday, 27 February 2019	9:01am	Thursday, 28 February 2019	9:00am	0	0
Thursday, 28 February 2019	9:01am	Friday, 1 March 2019	9:00am	0.6	0.2
Friday, 1 March 2019	9:01am	Saturday, 2 March 2019	9:00am	2.2	0.2
Saturday, 2 March 2019	9:01am	Sunday, 3 March 2019	9:00am	9	1.2
Sunday, 3 March 2019	9:01am	Monday, 4 March 2019	9:00am	2	0.4
Monday, 4 March 2019	9:01am	Tuesday, 5 March 2019	9:00am	0	0
Tuesday, 5 March 2019	9:01am	Wednesday, 6 March 2019	9:00am	0	0
Wednesday, 6 March 2019	9:01am	Thursday, 7 March 2019	9:00am	0	0
Thursday, 7 March 2019	9:01am	Friday, 8 March 2019	9:00am	2	0.8
Friday, 8 March 2019	9:01am	Saturday, 9 March 2019	9:00am	0.2	0.2
Saturday, 9 March 2019	9:01am	Sunday, 10 March 2019	9:00am	0	0
Sunday, 10 March 2019	9:01am	Monday, 11 March 2019	9:00am	0	0
Monday, 11 March 2019	9:01am	Tuesday, 12 March 2019	9:00am	0	0
Tuesday, 12 March 2019	9:01am	Wednesday, 13 March 2019	9:00am	0	0
Wednesday, 13 March 2019	9:01am	Thursday, 14 March 2019	9:00am	0	0
Thursday, 14 March 2019	9:01am	Friday, 15 March 2019	9:00am	2.8	0.2
Friday, 15 March 2019	9:01am	Saturday, 16 March 2019	9:00am	27.4	1
Saturday, 16 March 2019	9:01am	Sunday, 17 March 2019	9:00am	12.6	0.8
Sunday, 17 March 2019	9:01am	Monday, 18 March 2019	9:00am	4.6	0.2
Monday, 18 March 2019	9:01am	Tuesday, 19 March 2019	9:00am	0.2	0.2
Tuesday, 19 March 2019	9:01am	Wednesday, 20 March 2019	9:00am	0	0
Wednesday, 20 March 2019	9:01am	Thursday, 21 March 2019	9:00am	0.2	0.2
Thursday, 21 March 2019	9:01am	Friday, 22 March 2019	9:00am	0	0
Friday, 22 March 2019	9:01am	Saturday, 23 March 2019	9:00am	0.6	0.2
Saturday, 23 March 2019	9:01am	Sunday, 24 March 2019	9:00am	0	0
Sunday, 24 March 2019	9:01am	Monday, 25 March 2019	9:00am	0	0
Monday, 25 March 2019	9:01am	Tuesday, 26 March 2019	9:00am	0	0
Tuesday, 26 March 2019	9:01am	Wednesday, 27 March 2019	9:00am	22.2	0.8
Wednesday, 27 March 2019	9:01am	Thursday, 28 March 2019	9:00am	4	0.6
Thursday, 28 March 2019	9:01am	Friday, 29 March 2019	9:00am	3.6	1
Friday, 29 March 2019	9:01am	Saturday, 30 March 2019	9:00am	0.6	0.2
Saturday, 30 March 2019	9:01am	Sunday, 31 March 2019	9:00am	0.6	0.2
Sunday, 31 March 2019	9:01am	Monday, 1 April 2019	9:00am	0	0
Monday, 1 April 2019	9:01am	Tuesday, 2 April 2019	9:00am	6.2	0.8

**Sampling Point:** Rain gauge  
 Licence Cape Byron Management Pty Ltd  
 Location Broadwater Cogeneration Power Plant  
 EPL No 20425  
 Parameter/s Monitored Rainfall  
 Frequency & Method Continuous Auto Sampler



TIPPING GAUGE CONTINUOUS RAINFALL MONITORING					
Period From		Period To		Daily Rain	
Date	Time	Date	Time	Total (mm)	Max Intensity (mm/min)
Tuesday, 2 April 2019	9:01am	Wednesday, 3 April 2019	9:00am	80	3
Wednesday, 3 April 2019	9:01am	Thursday, 4 April 2019	9:00am	0	0
Thursday, 4 April 2019	9:01am	Friday, 5 April 2019	9:00am	0	0
Friday, 5 April 2019	9:01am	Saturday, 6 April 2019	9:00am	2.2	1
Saturday, 6 April 2019	9:01am	Sunday, 7 April 2019	9:00am	0	0
Sunday, 7 April 2019	9:01am	Monday, 8 April 2019	9:00am	0	0
Monday, 8 April 2019	9:01am	Tuesday, 9 April 2019	9:00am	0	0
Tuesday, 9 April 2019	9:01am	Wednesday, 10 April 2019	9:00am	0	0
Wednesday, 10 April 2019	9:01am	Thursday, 11 April 2019	9:00am	8.2	0.8
Thursday, 11 April 2019	9:01am	Friday, 12 April 2019	9:00am	10.2	1.2
Friday, 12 April 2019	9:01am	Saturday, 13 April 2019	9:00am	7.4	0.6
Saturday, 13 April 2019	9:01am	Sunday, 14 April 2019	9:00am	1.6	0.4
Sunday, 14 April 2019	9:01am	Monday, 15 April 2019	9:00am	0	0
Monday, 15 April 2019	9:01am	Tuesday, 16 April 2019	9:00am	9	0.4
Tuesday, 16 April 2019	9:01am	Wednesday, 17 April 2019	9:00am	14.4	1.6
Wednesday, 17 April 2019	9:01am	Thursday, 18 April 2019	9:00am	6.6	0.4
Thursday, 18 April 2019	9:01am	Friday, 19 April 2019	9:00am	5	0.6
Friday, 19 April 2019	9:01am	Saturday, 20 April 2019	9:00am	13	1.6
Saturday, 20 April 2019	9:01am	Sunday, 21 April 2019	9:00am	0.2	0.2
Sunday, 21 April 2019	9:01am	Monday, 22 April 2019	9:00am	0.4	0.2
Monday, 22 April 2019	9:01am	Tuesday, 23 April 2019	9:00am	2	0.4
Tuesday, 23 April 2019	9:01am	Wednesday, 24 April 2019	9:00am	0.8	0.2
Wednesday, 24 April 2019	9:01am	Thursday, 25 April 2019	9:00am	1.4	0.2
Thursday, 25 April 2019	9:01am	Friday, 26 April 2019	9:00am	0	0
Friday, 26 April 2019	9:01am	Saturday, 27 April 2019	9:00am	0.2	0.2
Saturday, 27 April 2019	9:01am	Sunday, 28 April 2019	9:00am	0	0
Sunday, 28 April 2019	9:01am	Monday, 29 April 2019	9:00am	0.2	0.2
Monday, 29 April 2019	9:01am	Tuesday, 30 April 2019	9:00am	1.2	0.2
Tuesday, 30 April 2019	9:01am	Wednesday, 1 May 2019	9:00am	6.8	0.4
Wednesday, 1 May 2019	9:01am	Thursday, 2 May 2019	9:00am	3.4	0.4
Thursday, 2 May 2019	9:01am	Friday, 3 May 2019	9:00am	0	0
Friday, 3 May 2019	9:01am	Saturday, 4 May 2019	9:00am	0	0
Saturday, 4 May 2019	9:01am	Sunday, 5 May 2019	9:00am	3.4	0.2
Sunday, 5 May 2019	9:01am	Monday, 6 May 2019	9:00am	0	0
Monday, 6 May 2019	9:01am	Tuesday, 7 May 2019	9:00am	0	0
Tuesday, 7 May 2019	9:01am	Wednesday, 8 May 2019	9:00am	0	0
Wednesday, 8 May 2019	9:01am	Thursday, 9 May 2019	9:00am	0.2	0.2
Thursday, 9 May 2019	9:01am	Friday, 10 May 2019	9:00am	0	0
Friday, 10 May 2019	9:01am	Saturday, 11 May 2019	9:00am	1	0.4
Saturday, 11 May 2019	9:01am	Sunday, 12 May 2019	9:00am	0	0
Sunday, 12 May 2019	9:01am	Monday, 13 May 2019	9:00am	1.6	0.2
Monday, 13 May 2019	9:01am	Tuesday, 14 May 2019	9:00am	2.8	0.2
Tuesday, 14 May 2019	9:01am	Wednesday, 15 May 2019	9:00am	0	0
Wednesday, 15 May 2019	9:01am	Thursday, 16 May 2019	9:00am	0.2	0.2
Thursday, 16 May 2019	9:01am	Friday, 17 May 2019	9:00am	5.2	0.6
Friday, 17 May 2019	9:01am	Saturday, 18 May 2019	9:00am	0.8	0.2
Saturday, 18 May 2019	9:01am	Sunday, 19 May 2019	9:00am	4	1
Sunday, 19 May 2019	9:01am	Monday, 20 May 2019	9:00am	8.8	0.6
Monday, 20 May 2019	9:01am	Tuesday, 21 May 2019	9:00am	0	0
Tuesday, 21 May 2019	9:01am	Wednesday, 22 May 2019	9:00am	0.2	0.2
Wednesday, 22 May 2019	9:01am	Thursday, 23 May 2019	9:00am	1	0.4
Thursday, 23 May 2019	9:01am	Friday, 24 May 2019	9:00am	16	0.8
Friday, 24 May 2019	9:01am	Saturday, 25 May 2019	9:00am	0.2	0.2
Saturday, 25 May 2019	9:01am	Sunday, 26 May 2019	9:00am	0.2	0.2
Sunday, 26 May 2019	9:01am	Monday, 27 May 2019	9:00am	0.2	0.2
Monday, 27 May 2019	9:01am	Tuesday, 28 May 2019	9:00am	0	0
Tuesday, 28 May 2019	9:01am	Wednesday, 29 May 2019	9:00am	0	0
Wednesday, 29 May 2019	9:01am	Thursday, 30 May 2019	9:00am	0	0
Thursday, 30 May 2019	9:01am	Friday, 31 May 2019	9:00am	0	0
Friday, 31 May 2019	9:01am	Saturday, 1 June 2019	9:00am	0	0
Saturday, 1 June 2019	9:01am	Sunday, 2 June 2019	9:00am	29	1
Sunday, 2 June 2019	9:01am	Monday, 3 June 2019	9:00am	3	0.2
Monday, 3 June 2019	9:01am	Tuesday, 4 June 2019	9:00am	0.2	0.2
Tuesday, 4 June 2019	9:01am	Wednesday, 5 June 2019	9:00am	0	0
Wednesday, 5 June 2019	9:01am	Thursday, 6 June 2019	9:00am	0	0
Thursday, 6 June 2019	9:01am	Friday, 7 June 2019	9:00am	0	0
Friday, 7 June 2019	9:01am	Saturday, 8 June 2019	9:00am	0.6	4.2
Saturday, 8 June 2019	9:01am	Sunday, 9 June 2019	9:00am	0.4	10
Sunday, 9 June 2019	9:01am	Monday, 10 June 2019	9:00am	0.2	0.2
Monday, 10 June 2019	9:01am	Tuesday, 11 June 2019	9:00am	0.2	0.2
Tuesday, 11 June 2019	9:01am	Wednesday, 12 June 2019	9:00am	0.2	0.2
Wednesday, 12 June 2019	9:01am	Thursday, 13 June 2019	9:00am	0	0
Thursday, 13 June 2019	9:01am	Friday, 14 June 2019	9:00am	0	0
Friday, 14 June 2019	9:01am	Saturday, 15 June 2019	9:00am	2.6	16
Saturday, 15 June 2019	9:01am	Sunday, 16 June 2019	9:00am	0.8	6.6
Sunday, 16 June 2019	9:01am	Monday, 17 June 2019	9:00am	0.2	2
Monday, 17 June 2019	9:01am	Tuesday, 18 June 2019	9:00am	0	0
Tuesday, 18 June 2019	9:01am	Wednesday, 19 June 2019	9:00am	0.2	0.2
Wednesday, 19 June 2019	9:01am	Thursday, 20 June 2019	9:00am	0	0
Thursday, 20 June 2019	9:01am	Friday, 21 June 2019	9:00am	0.2	2.6
Friday, 21 June 2019	9:01am	Saturday, 22 June 2019	9:00am	0	0
Saturday, 22 June 2019	9:01am	Sunday, 23 June 2019	9:00am	0	0
Sunday, 23 June 2019	9:01am	Monday, 24 June 2019	9:00am	0.6	4
Monday, 24 June 2019	9:01am	Tuesday, 25 June 2019	9:00am	2.8	81.2
Tuesday, 25 June 2019	9:01am	Wednesday, 26 June 2019	9:00am	1	7.6
Wednesday, 26 June 2019	9:01am	Thursday, 27 June 2019	9:00am	2.8	30
Thursday, 27 June 2019	9:01am	Friday, 28 June 2019	9:00am	0.8	11.6
Friday, 28 June 2019	9:01am	Saturday, 29 June 2019	9:00am	0.4	4
Saturday, 29 June 2019	9:01am	Sunday, 30 June 2019	9:00am	0.4	2
Sunday, 30 June 2019	9:01am	Monday, 1 July 2019	9:00am	0.2	2



Licencee Cape Byron Management Pty Ltd  
Location Broadwater Cogeneration Power Plant  
EPL No 20425



CORRECTIONS LOG							
Date Sampled	Monitoring Point	Pollutant/Parameter	Original Data	Corrected Data	Date Corrected	Date Originally Published	Reason
3-Jan-19	9-Jan-19	Particulates	1.9	1.1	15-Mar-19	15-Mar-19	Misread information