



## Eraring Power Station - EPA Licence 1429

Rocky Point Rd, Dora Creek NSW 2264

### Environmental Monitoring Data

February 2017



## Unit 1 Boiler Continuous Emission Monitoring Summary

*EPA Identification no. 11 - Air emissions monitoring, Boiler 1 stack discharge to air*

- 11th - 13th Sox instrument out of service.

	NOX			Particulates			SOX		
	ppm (7% O2)			mg/m3			ppm (7% O2)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Feb	169	185	137	14	22	10	178	187	164
2 - Feb	172	196	131	11	20	7	181	191	159
3 - Feb	170	193	150	12	18	9	189	195	171
4 - Feb	161	183	134	11	20	5	189	194	167
5 - Feb	158	176	123	7	9	5	192	198	173
6 - Feb	152	178	117	8	10	5	183	189	164
7 - Feb	132	148	114	12	17	9	185	200	170
8 - Feb	136	156	114	12	22	8	187	204	161
9 - Feb	152	183	105	12	20	7	177	188	158
10 - Feb	141	154	117	9	17	4	177	186	169
11 - Feb	154	202	111	10	16	6	0	0	0
12 - Feb	155	196	137	12	18	7	0	0	0
13 - Feb	152	169	120	13	20	9	0	0	0
14 - Feb	168	212	117	13	22	9	158	168	147
15 - Feb	159	182	121	13	23	9	172	179	153
16 - Feb	157	215	114	12	23	7	162	174	156
17 - Feb	165	223	127	9	13	6	158	177	143
18 - Feb	175	197	134	10	17	6	165	179	158
19 - Feb	188	217	143	12	16	8	158	165	147
20 - Feb	201	226	151	10	17	8	152	163	146
21 - Feb	177	191	142	12	21	10	160	176	146
22 - Feb	182	194	142	12	22	9	161	166	146
23 - Feb	177	197	151	13	24	8	157	167	146
24 - Feb	166	187	147	13	20	9	151	167	140
25 - Feb	168	197	127	16	22	11	153	174	141
26 - Feb	150	194	109	17	33	9	139	146	129
27 - Feb	163	193	112	15	25	9	138	147	121
28 - Feb	163	185	125	16	26	10	145	156	130

## Unit 2 Boiler Continuous Emission Monitoring Summary

*EPA Identification no. 12 - Air emissions monitoring, Boiler 2 stack discharge to air*

	NOX			Particulates			SOX		
	ppm (7% O2)			mg/m3			ppm (7% O2)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Feb	140	174	105	11	14	10	182	193	168
2 - Feb	133	147	101	9	12	7	182	197	163
3 - Feb	158	181	111	9	13	7	192	207	184
4 - Feb	146	168	113	9	14	7	184	193	162
5 - Feb	147	173	111	9	12	7	197	203	178
6 - Feb	139	190	104	10	13	7	176	190	154
7 - Feb	111	129	102	13	25	9	185	196	170
8 - Feb	125	139	101	11	14	9	199	224	166
9 - Feb	119	129	109	11	13	8	173	191	149
10 - Feb	116	128	101	10	13	7	191	205	170
11 - Feb	130	169	106	10	12	7	190	203	170
12 - Feb	108	117	101	11	14	8	184	199	152
13 - Feb	141	188	104	11	13	8	181	189	154
14 - Feb	153	187	115	12	16	9	181	194	152
15 - Feb	144	168	105	11	15	10	196	202	181
16 - Feb	151	202	104	11	14	9	191	203	180
17 - Feb	123	144	105	11	14	8	187	200	177
18 - Feb	119	136	101	11	15	8	183	197	160
19 - Feb	131	154	101	10	13	8	191	196	174
20 - Feb	175	204	104	12	15	10	190	198	178
21 - Feb	135	166	110	12	20	10	182	192	161
22 - Feb	155	182	108	12	17	10	188	202	161
23 - Feb	160	180	108	12	17	9	190	197	172
24 - Feb	129	172	111	13	16	10	184	197	174
25 - Feb	134	178	111	16	21	12	181	199	169
26 - Feb	145	182	113	16	21	12	176	186	163
27 - Feb	154	197	110	17	20	15	175	188	151
28 - Feb	175	200	122	19	26	15	173	183	128

## Unit 3 Boiler Continuous Emission Monitoring Summary

*EPA Identification no. 13 - Air emissions monitoring, Boiler 3 stack discharge to air*

- 5th - 8th Sox Sample pump failure.
- 19th - 24th Unit out of service due to tube leak.

	NOX			Particulates			SOX		
	ppm (7% O2)			mg/m3			ppm (7% O2)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Feb	147	168	123	24	27	21	164	169	129
2 - Feb	136	171	119	23	27	20	161	173	128
3 - Feb	119	134	112	24	25	21	167	175	135
4 - Feb	111	132	103	24	26	21	151	159	130
5 - Feb	113	125	101	23	25	21	0	0	0
6 - Feb	115	125	102	23	26	21	0	0	0
7 - Feb	109	113	102	25	31	23	0	0	0
8 - Feb	94	113	69	12	17	11	0	0	0
9 - Feb	117	125	103	14	18	13	153	166	101
10 - Feb	126	138	118	14	17	13	166	182	130
11 - Feb	136	185	108	14	16	12	166	174	136
12 - Feb	133	161	122	14	16	13	168	187	128
13 - Feb	135	140	123	14	16	13	163	167	152
14 - Feb	131	145	122	15	19	13	162	172	143
15 - Feb	122	128	117	15	17	13	177	191	169
16 - Feb	126	140	109	14	17	13	170	186	137
17 - Feb	130	137	122	14	19	11	171	183	131
18 - Feb	121	136	106	14	17	12	173	186	127
19 - Feb	0	0	0	0	0	0	0	0	0
20 - Feb	0	0	0	0	0	0	0	0	0
21 - Feb	0	0	0	0	0	0	0	0	0
22 - Feb	0	0	0	0	0	0	0	0	0
23 - Feb	0	0	0	0	0	0	0	0	0
24 - Feb	0	0	0	0	0	0	0	0	0
25 - Feb	138	160	117	23	26	20	148	176	110
26 - Feb	170	210	126	17	25	14	175	182	137
27 - Feb	179	227	124	16	21	13	169	177	140
28 - Feb	175	200	122	19	26	15	175	183	169

## Unit 4 Boiler Continuous Emission Monitoring Summary

*EPA Identification no. 14 - Air emissions monitoring, Boiler 4 stack discharge to air*

- 11th - 13th Sox instrument failed due to heat - Instrument replaced

	NOX			Particulates			SOX		
	ppm (7% O2)			mg/m3			ppm (7% O2)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Feb	146	170	116	14	18	12	166	171	162
2 - Feb	145	159	116	13	15	11	171	182	162
3 - Feb	146	159	117	14	15	12	180	186	173
4 - Feb	151	167	130	13	14	12	173	181	161
5 - Feb	143	153	132	12	15	12	183	187	175
6 - Feb	151	163	133	13	19	11	164	175	158
7 - Feb	141	153	121	13	15	11	174	182	160
8 - Feb	149	163	133	13	16	12	166	182	152
9 - Feb	148	162	127	13	15	12	167	188	157
10 - Feb	141	159	119	12	14	10	166	182	149
11 - Feb	146	163	122	12	13	9	0	0	0
12 - Feb	112	130	104	13	16	10	0	0	0
13 - Feb	129	166	107	12	16	10	0	0	0
14 - Feb	145	163	126	13	16	11	169	179	165
15 - Feb	132	141	118	13	15	12	187	195	178
16 - Feb	136	152	122	13	14	11	175	184	164
17 - Feb	137	155	114	13	15	11	177	188	164
18 - Feb	131	144	109	13	15	11	181	191	172
19 - Feb	139	152	110	13	16	12	179	185	174
20 - Feb	156	180	116	13	15	12	176	182	167
21 - Feb	147	157	135	14	17	12	175	185	169
22 - Feb	153	166	135	14	16	12	178	186	166
23 - Feb	147	163	114	14	16	12	179	191	175
24 - Feb	152	176	122	14	15	12	179	191	167
25 - Feb	141	159	114	14	17	12	177	191	165
26 - Feb	148	178	107	14	16	11	169	181	135
27 - Feb	168	210	105	14	17	11	164	172	154
28 - Feb	164	191	122	14	16	12	165	179	113

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## Unit 1 Boiler Emission Test Results

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*EPA Identification no. 11 - Air emissions monitoring, Boiler 1 stack discharge to air*

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Cadmium	0.0012	mg/m3	0.20	16/08/2016
Carbon Dioxide (Wet)	12.9	%	-	16/08/2016
Carbon Monoxide	2.0	mg/m3	-	16/08/2016
Chlorine	0.24	mg/m3	300	16/08/2016
Copper	0.0023	mg/m3	-	16/08/2016
Dry Gas Density	1.4	kg/m3	-	16/08/2016
Fluoride As HF - Total	8.7	mg/m3	50	16/08/2016
Hazardous Substances (Metals) - Total	0.018	mg/m3	1.00	16/08/2016
Hydrogen Chloride	1.3	mg/m3	100.0	16/08/2016
Mercury	0.00010	mg/m3	0.200	16/08/2016
Moisture	5.0	%	-	16/08/2016
Particulates - Total	1.6	mg/m3	50	16/08/2016
Stack Gas Molecular Weight	30	kg/k-mole	-	16/08/2016
Temperature	106.6	degC	-	16/08/2016
Velocity	13.0	m/sec	-	16/08/2016
Volatile Organic Compounds (VOC) - Total	0.53	mg/m3	-	16/08/2016
Volumetric Flow Rate (Dry At STP)	324	m3/sec	-	16/08/2016



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## Unit 2 Boiler Emission Test Results

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*EPA Identification no. 12 - Air emissions monitoring, Boiler 2 stack discharge to air*

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Cadmium	0.0050	mg/m3	0.20	20/12/2016
Carbon Dioxide (Wet)	11.9	%	-	20/12/2016
Carbon Monoxide	3.0	mg/m3	-	20/12/2016
Chlorine	0.61	mg/m3	300	20/12/2016
Copper	0.0020	mg/m3	-	20/12/2016
Dry Gas Density	1.4	kg/m3	-	20/12/2016
Fluoride As HF - Total	7.5	mg/m3	50	20/12/2016
Hazardous Substances (Metals) - Total	0.009	mg/m3	1.00	20/12/2016
Hydrogen Chloride	0.23	mg/m3	100.0	20/12/2016
Mercury	0.0003	mg/m3	0.200	20/12/2016
Moisture	4.0	%	-	20/12/2016
Particulates - Total	15.0	mg/m3	50	20/12/2016
Stack Gas Molecular Weight	30	kg/k-mole	-	20/12/2016
Temperature	110.0	degC	-	20/12/2016
Velocity	12.0	m/sec	-	20/12/2016
Volatile Organic Compounds (VOC) - Total	0.07	mg/m3	-	20/12/2016
Volumetric Flow Rate (Dry At STP)	299	m3/sec	-	20/12/2016

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## Unit 3 Boiler Emission Test Results

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*EPA Identification no. 13 - Air emissions monitoring, Boiler 3 stack discharge to air*

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Cadmium	0.05	mg/m3	0.20	22/08/2015
Carbon Dioxide (Wet)	11.8	%	-	22/08/2015
Carbon Monoxide	1.00	mg/m3	-	22/08/2015
Chlorine	0.76	mg/m3	200	22/08/2015
Copper	0.010	mg/m3	-	22/08/2015
Dry Gas Density	1.4	kg/m3	-	22/08/2015
Fluoride As HF - Total	11.8	mg/m3	50	22/08/2015
Hazardous Substances (Metals) - Total	0.07	mg/m3	1.00	22/08/2015
Hydrogen Chloride	0.53	mg/m3	100.0	22/08/2015
Mercury	0.0003	mg/m3	0.200	22/08/2015
Moisture	3.2	%	-	22/08/2015
Particulates - Total	2.1	mg/m3	50	22/08/2015
Stack Gas Molecular Weight	30	kg/k-mole	-	22/08/2015
Temperature	117.0	degC	-	22/08/2015
Velocity	10.3	m/sec	-	22/08/2015
Volatile Organic Compounds (VOC) - Total	0.76	mg/m3	-	22/08/2015
Volumetric Flow Rate (Dry At STP)	236	m3/sec	-	22/08/2015



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## Unit 4 Boiler Emission Test Results

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*EPA Identification no. 14 - Air emissions monitoring, Boiler 4 stack discharge to air*

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Cadmium	0.0006	mg/m3	0.20	31/10/2015
Carbon Dioxide (Wet)	10.2	%	-	31/10/2015
Carbon Monoxide	0.11	mg/m3	-	31/10/2015
Chlorine	0.86	mg/m3	200	31/10/2015
Copper	0.0004	mg/m3	-	31/10/2015
Dry Gas Density	1.3	kg/m3	-	31/10/2015
Fluoride As HF - Total	3.3	mg/m3	50	31/10/2015
Hazardous Substances (Metals) - Total	0.07	mg/m3	1.00	31/10/2015
Hydrogen Chloride	0.30	mg/m3	100.0	31/10/2015
Mercury	0.0011	mg/m3	0.200	31/10/2015
Moisture	5.4	%	-	31/10/2015
Particulates - Total	0.22	mg/m3	50	31/10/2015
Stack Gas Molecular Weight	30	kg/k-mole	-	31/10/2015
Temperature	112.5	degC	-	31/10/2015
Velocity	11.5	m/sec	-	31/10/2015
Volatile Organic Compounds (VOC) - Total	0.86	mg/m3	-	31/10/2015
Volumetric Flow Rate (Dry At STP)	258	m3/sec	-	31/10/2015

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## Eraring Depositional Dust Gauges

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*EPA Identification no. 18, 25, 26 & 27 - Depositional dust monitoring within 1km of the coal handling operations*

- U6 Dust gauge contaminated - results removed.

	Deposited Matter		
	g/m2/month		
	Ash	Combustible	Insolubles
<b>E2</b>	0.50	0.40	0.90
<b>E4</b>	0.40	0.20	0.60
<b>E6</b>	1.40	1.10	2.50
<b>U6</b>			

## Water Quality - Lake Monitoring LM10

*EPA Identification no. 4 - The waters of Lake Macquarie located midway between cooling water inlet and Hungary Point*

	Temp	pH	Salinity	Dissolved Oxygen		Secchi
	degC		ppt	%	mg/L	m
Depth/Air	28.48					
010cm	29.29	7.66	35.40	80.20	4.93	1.75
050cm	29.37	7.64	35.70	75.00	4.63	
100cm	29.38	7.64	35.60	82.20	5.03	
150cm	29.38	7.63	35.60	75.80	4.66	
200cm	29.35	7.62	35.60	74.30	4.62	
250cm	29.33	7.62	35.60	81.00	4.98	
300cm	29.33	7.62	35.60	80.90	4.96	
Bottom	29.35	7.62	36.10	66.80	4.10	

## Water Quality - Lake Monitoring LM12

*EPA Identification no. 6 - The waters of Lake Macquarie located at the Eraring/Vales Point mixing zone off Fishery Point*

	Temp	pH	Salinity	Dissolved Oxygen		Secchi
	degC		ppt	%	mg/L	m
Depth/Air	27.30					
010cm	29.73	7.68	36.20	84.00	5.10	2.25
050cm	30.13	7.67	36.10	86.80	5.23	
100cm	30.15	7.67	36.20	84.00	5.07	
150cm	30.17	7.67	36.10	83.60	5.07	
200cm	30.16	7.66	36.20	82.50	5.04	
250cm	30.08	7.67	36.10	82.50	5.00	
300cm	30.10	7.67	36.20	76.30	4.96	
350cm	30.03	7.67	36.20	82.10	4.93	
400cm	30.03	7.66	36.10	89.20	5.30	
450cm	29.99	7.66	36.20	80.10	4.82	
500cm	29.76	7.65	36.10	87.40	5.30	
550cm	29.67	7.64	36.10	89.60	5.45	
600cm	29.70	7.64	36.10	84.90	5.13	
650cm	29.36	7.62	36.00	77.70	4.75	
700cm	29.00	7.59	36.10	75.80	4.67	
Bottom	28.93	7.59	36.10	77.00	4.77	

## Water Quality - Lake Monitoring LM4

*EPA Identification no. 7 - The northern waters of Lake Macquarie east off Lake Macquarie Yacht Club*

	Temp	pH	Salinity	Dissolved Oxygen		Secchi
	degC		ppt	%	mg/L	m
Depth/Air	25.98					
010cm	27.31	7.72	34.40	114.80	7.34	4.25
050cm	27.31	7.72	34.40	114.70	7.31	
100cm	27.31	7.72	34.90	114.30	7.24	
150cm	27.30	7.72	34.90	113.40	7.22	
200cm	27.30	7.72	34.90	111.20	7.04	
250cm	27.18	7.72	34.90	110.40	7.02	
300cm	27.00	7.72	34.90	109.50	6.98	
350cm	26.87	7.72	34.90	108.00	6.89	
400cm	26.74	7.71	35.00	103.50	6.65	
450cm	26.63	7.71	35.00	104.10	6.70	
500cm	26.60	7.70	35.00	102.20	6.53	
550cm	26.51	7.70	35.00	101.90	6.55	
600cm	26.49	7.70	35.00	100.00	6.44	
650cm	26.33	7.68	35.00	98.50	6.35	
700cm	26.26	7.68	35.00	96.00	6.20	
750cm	26.24	7.67	35.00	93.40	6.04	
800cm	26.20	7.67	35.00	93.50	6.04	
850cm	26.15	7.67	35.00	92.90	6.01	
900cm	26.11	7.66	35.00	92.40	5.98	
950cm	26.02	7.66	35.00	91.20	5.91	
Bottom	25.96	7.64	35.00	86.40	5.62	

## Water Quality - Lake Monitoring LM7

*EPA Identification no. 5 - The waters of Lake Macquarie located off old Wangi power station inlet point in Myuna Bay*

	Temp	pH	Salinity	Dissolved Oxygen		Secchi
	degC		ppt	%	mg/L	m
Depth/Air	28.10					
010cm	31.55	7.66	35.70	93.40	5.57	2.75
050cm	31.59	7.66	35.70	94.60	5.64	
100cm	31.65	7.65	35.60	99.80	5.90	
150cm	31.65	7.65	35.60	100.90	5.95	
200cm	31.67	7.65	35.70	97.50	5.75	
250cm	31.69	7.65	35.60	102.90	6.09	
300cm	31.70	7.65	35.60	98.80	5.85	
350cm	31.69	7.66	36.00	101.70	5.98	
400cm	31.66	7.65	36.00	101.90	5.99	
450cm	31.31	7.63	36.00	99.10	5.92	
500cm	30.19	7.65	36.00	92.00	5.43	
550cm	29.53	7.65	36.00	88.20	5.34	
600cm	28.63	7.60	35.90	69.50	4.33	
Bottom	28.64	7.53	35.00	60.10	3.98	

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## Eraring Ash Dam Effluent Quality Monitoring

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*EPA Identification no. 10 - Discharge point below siphon pond weir at Ash Dam*

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Cadmium	0.07	ug/L	-	02/02/2017
Copper	1.1	ug/L	-	02/02/2017
Iron	3.0	ug/L	-	02/02/2017
Lead	0.10	ug/L	-	02/02/2017
Manganese	20.6	ug/L	-	02/02/2017
Nitrite and Nitrate as N	716	ug/L	-	02/02/2017
Phosphorus Reactive as P - Total	160	ug/L	-	02/02/2017
Phosphorus as P - Total	224	ug/L	-	02/02/2017
Selenium	23.1	ug/L	-	02/02/2017
Suspended Solids (SS)	4,000	ug/L	-	02/02/2017
Zinc	1.00	ug/L	-	02/02/2017
pH	8.9	-	-	02/02/2017

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## Eraring Cooling Water Inlet Canal

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*EPA Identification no. 8 - Inlet canal of the cooling water intake from Lake Macquarie*

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Copper	1.10	ug/L	-	02/02/2017
Iron	12.0	ug/L	-	02/02/2017
Selenium	1.00	ug/L	-	02/02/2017
Temperature - Average	28.5	deg C	-	Feb 2017
Temperature - Minimum	25.8	deg C	-	Feb 2017
Temperature - Maximum	31.7	deg C	-	Feb 2017

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## Eraring Cooling Water Outlet Canal

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*EPA Identification no. 1 - Cooling water outlet canal to Myuna Bay*

- The 98.5% limit specified for temperature in the outlet canal means during normal electricity supply conditions, cooling water may be discharged over 35 degC but up to a max temperature of 38.5 degC for up to 181 hrs over the reporting period.

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Copper	2.60	ug/L	5	02/02/2017
Iron	9.0	ug/L	300	02/02/2017
Selenium	1.00	ug/L	2	02/02/2017
Temperature - Average	34.1	deg C	35	Feb 2017
Temperature - Minimum	29.5	deg C	35	Feb 2017
Temperature - Maximum	38.0	deg C	35	Feb 2017
Maximum Daily Discharge from Ash Dam	14.2	ML	150	Feb 2017
Monthly Discharge from Ash Dam	105	ML	-	Feb 2017

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## Emergency Discharge - Toe Drain Pond

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*EPA Identification no. 17 - Emergency discharge to toe drain collection pond*

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Nitrite and Nitrate as N	203	ug/L	-	02/02/2017
Phosphorus as P - Total	39	ug/L	-	02/02/2017
pH	6.9	-	-	02/02/2017