



Eraring Power Station - EPA Licence 1429

Rocky Point Rd, Dora Creek NSW 2264

Environmental Monitoring Data

May 2017



Unit 1 Boiler Continuous Emission Monitoring Summary

EPA Identification no. 11 - Air emissions monitoring, Boiler 1 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 - May	163	183	128	12	19	9	188	201	162
2 - May	156	177	132	10	17	7	182	198	151
3 - May	149	164	131	7	13	6	166	178	158
4 - May	152	161	138	7	12	5	169	179	157
5 - May	148	160	120	8	12	6	172	178	164
6 - May	160	195	124	8	14	4	173	193	154
7 - May	168	196	133	7	10	5	178	220	148
8 - May	173	189	144	7	11	5	170	180	151
9 - May	166	187	137	7	12	4	169	194	145
10 - May	160	171	133	6	11	4	181	193	170
11 - May	160	180	132	7	12	4	178	191	167
12 - May	162	185	137	6	12	4	182	193	165
13 - May	164	185	133	7	15	5	168	196	149
14 - May	168	184	134	6	10	3	184	213	163
15 - May	151	165	133	5	10	4	173	234	137
16 - May	140	148	132	5	8	4	179	236	165
17 - May	135	163	116	6	13	4	190	215	167
18 - May	150	165	135	7	16	4	174	207	155
19 - May	144	162	123	7	14	4	191	210	172
20 - May	162	221	126	6	10	4	184	213	154
21 - May	172	213	121	7	12	5	187	211	161
22 - May	176	208	134	6	10	4	187	195	171
23 - May	166	186	146	6	13	4	179	201	157
24 - May	153	183	126	6	10	4	190	199	173
25 - May	152	180	106	6	10	5	190	204	174
26 - May	159	185	128	7	12	5	190	203	183
27 - May	153	196	132	8	17	5	169	185	145
28 - May	155	205	126	7	14	4	182	219	157
29 - May	168	195	133	6	11	5	177	192	163
30 - May	169	182	140	7	12	5	191	214	160
31 - May	176	200	150	6	8	5	183	202	169

Unit 2 Boiler Continuous Emission Monitoring Summary

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

- Unit out of service 1st - 6th
- SOx instrument error on return to service, 7th - 10th.

	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 - May	0	0	0	0	0	0	0	0	0
2 - May	0	0	0	0	0	0	0	0	0
3 - May	0	0	0	0	0	0	0	0	0
4 - May	0	0	0	0	0	0	0	0	0
5 - May	0	0	0	0	0	0	0	0	0
6 - May	0	0	0	0	0	0	0	0	0
7 - May	120	141	106	0	0	0	164	176	143
8 - May	122	129	116	0	0	0	222	242	182
9 - May	127	157	101	0	0	0	195	216	178
10 - May	137	146	131	0	0	0	216	239	189
11 - May	145	163	128	16	18	15	208	224	187
12 - May	138	150	120	16	19	15	205	215	187
13 - May	127	137	121	19	21	18	200	256	167
14 - May	144	174	112	16	18	15	214	241	179
15 - May	146	179	125	16	18	14	217	234	194
16 - May	150	169	121	16	29	15	217	229	206
17 - May	149	166	132	23	26	21	240	259	209
18 - May	165	179	149	23	28	21	215	232	194
19 - May	160	179	134	23	28	21	231	260	199
20 - May	122	153	108	24	27	21	216	236	191
21 - May	142	162	126	25	28	22	218	254	203
22 - May	156	172	134	23	26	21	212	236	187
23 - May	149	174	133	23	28	19	211	232	188
24 - May	145	163	125	23	27	21	218	229	193
25 - May	148	158	132	24	28	21	216	248	173
26 - May	150	164	136	25	30	22	231	246	207
27 - May	137	167	118	26	31	23	212	245	193
28 - May	144	178	126	26	30	22	236	264	192
29 - May	150	160	125	24	27	22	228	251	212
30 - May	147	154	135	23	28	20	219	230	200
31 - May	160	176	143	22	24	20	226	246	178

Unit 3 Boiler Continuous Emission Monitoring Summary

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

- Data system failure 15-18th.

Electrical storm caused SOX failure 24th - 28th

	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 - May	172	196	129	17	22	8	207	224	181
2 - May	168	188	124	16	20	8	199	215	172
3 - May	157	168	147	17	19	16	190	201	170
4 - May	158	190	120	18	21	17	181	188	171
5 - May	162	175	142	19	22	13	190	198	179
6 - May	147	166	115	18	25	8	200	210	181
7 - May	152	169	130	19	23	18	187	204	176
8 - May	158	175	120	18	24	12	192	205	169
9 - May	149	176	69	19	23	17	190	213	160
10 - May	146	157	120	19	23	10	193	206	177
11 - May	144	165	115	19	24	9	193	207	180
12 - May	152	167	120	17	22	8	187	200	174
13 - May	163	193	123	16	21	7	179	193	166
14 - May	148	179	106	18	22	15	200	217	185
15 - May	0	0	0	0	0	0	0	0	0
16 - May	0	0	0	0	0	0	0	0	0
17 - May	0	0	0	0	0	0	0	0	0
18 - May	0	0	0	0	0	0	0	0	0
19 - May	169	180	160	17	19	16	194	199	190
20 - May	132	168	105	17	22	9	201	234	165
21 - May	123	152	104	18	22	15	203	222	182
22 - May	141	161	106	17	20	15	194	204	175
23 - May	133	153	113	17	22	12	180	200	133
24 - May	157	193	108	17	21	9	0	0	0
25 - May	161	187	124	17	22	9	0	0	0
26 - May	155	182	127	18	23	16	0	0	0
27 - May	128	159	104	19	23	16	0	0	0
28 - May	127	165	104	19	36	16	0	0	0
29 - May	150	179	109	18	23	9	191	198	176
30 - May	151	179	115	19	24	10	196	218	175
31 - May	158	179	130	19	21	11	194	205	186

Unit 4 Boiler Continuous Emission Monitoring Summary

EPA Identification no. 14 - Air emissions monitoring, Boiler 4 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 - May	183	215	144	10	12	9	213	226	192
2 - May	177	196	142	9	14	9	212	237	188
3 - May	175	197	163	13	16	10	196	205	177
4 - May	184	199	148	24	28	12	196	231	168
5 - May	180	196	164	26	29	23	191	200	177
6 - May	181	198	151	26	29	21	194	216	177
7 - May	194	214	170	26	30	22	204	238	190
8 - May	190	207	156	27	29	23	206	218	179
9 - May	190	206	181	26	29	25	193	225	165
10 - May	177	190	144	26	29	21	209	221	189
11 - May	183	192	171	25	28	23	200	217	189
12 - May	177	197	144	26	30	21	201	209	193
13 - May	177	193	151	25	28	24	185	198	170
14 - May	141	174	121	22	30	18	203	232	173
15 - May	180	204	130	27	31	22	197	209	187
16 - May	160	203	112	25	30	18	203	212	194
17 - May	179	201	148	28	31	24	220	244	195
18 - May	177	218	135	27	31	22	188	206	173
19 - May	173	189	140	28	32	22	208	225	196
20 - May	165	186	140	25	31	19	208	237	185
21 - May	159	193	118	23	26	20	204	221	182
22 - May	161	181	133	23	26	18	205	234	173
23 - May	175	207	131	24	29	19	208	229	196
24 - May	169	202	123	25	28	20	215	227	205
25 - May	172	205	122	25	28	20	216	236	185
26 - May	151	168	127	25	29	22	222	239	204
27 - May	138	166	118	23	27	19	207	223	192
28 - May	140	169	117	22	27	19	229	260	178
29 - May	151	171	118	24	27	19	218	245	192
30 - May	161	185	151	26	31	22	212	241	186
31 - May	166	183	152	25	27	21	217	236	195

Unit 1 Boiler Emission Test Results

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	0.21	mg/m3	-	16/08/2016
Volumetric Flow Rate (Dry At STP)	324	m3/sec	-	16/08/2016

Unit 2 Boiler Emission Test Results

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

Unit 3 Boiler Emission Test Results

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	0.0040	mg/m3	0.20	02/05/2017
Carbon Dioxide (Wet)	13.1	%	-	02/05/2017
Carbon Monoxide	12.0	mg/m3	-	02/05/2017
Chlorine	0.037	mg/m3	200	02/05/2017
Copper	0.0015	mg/m3	-	02/05/2017
Dry Gas Density	1.4	kg/m3	-	02/05/2017
Fluoride As HF - Total	13.0	mg/m3	50	02/05/2017
Hazardous Substances (Metals) - Total	0.009	mg/m3	1.00	02/05/2017
Hydrogen Chloride	4.0	mg/m3	100.0	02/05/2017
Mercury	0.00010	mg/m3	0.200	02/05/2017
Moisture	5.8	%	-	02/05/2017
Particulates - Total	0.07	mg/m3	50	02/05/2017
Stack Gas Molecular Weight	30	kg/k-mole	-	02/05/2017
Temperature	118.0	degC	-	02/05/2017
Velocity	16.0	m/sec	-	02/05/2017
Volatile Organic Compounds (VOC) - Total	0.08	mg/m3	-	02/05/2017
Volumetric Flow Rate (Dry At STP)	396	m3/sec	-	02/05/2017

Unit 4 Boiler Emission Test Results

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	0.0012	mg/m3	0.20	15/02/2017
Carbon Dioxide (Wet)	13.5	%	-	15/02/2017
Carbon Monoxide	15.0	mg/m3	-	15/02/2017
Chlorine	0.12	mg/m3	200	15/02/2017
Copper	0.0018	mg/m3	-	15/02/2017
Dry Gas Density	1.4	kg/m3	-	15/02/2017
Fluoride As HF - Total	8.3	mg/m3	50	15/02/2017
Hazardous Substances (Metals) - Total	0.009	mg/m3	1.00	15/02/2017
Hydrogen Chloride	1.9	mg/m3	100.0	15/02/2017
Mercury	0.0001	mg/m3	0.200	15/02/2017
Moisture	5.6	%	-	15/02/2017
Particulates - Total	7.8	mg/m3	50	15/02/2017
Stack Gas Molecular Weight	31	kg/k-mole	-	15/02/2017
Temperature	121.0	degC	-	15/02/2017
Velocity	17.0	m/sec	-	15/02/2017
Volatile Organic Compounds (VOC) - Total	0.06	mg/m3	-	15/02/2017
Volumetric Flow Rate (Dry At STP)	431	m3/sec	-	15/02/2017

Eraring Depositional Dust Gauges

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

	Deposited Matter		
	g/m2/month		
	Ash	Combustible	Insolubles
E2	0.20	0.30	0.50
E4	0.60	0.40	1.00
E6	0.70	0.40	1.10
U6	0.20	0.10	0.30

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	21.14					
010cm	20.89	7.87	33.30	92.00	6.56	3.75
050cm	20.90	7.85	33.60	94.30	6.70	
100cm	20.89	7.85	33.60	99.30	7.07	
150cm	20.73	7.84	33.60	105.10	7.50	
200cm	20.65	7.84	33.60	108.20	7.74	
250cm	20.57	7.84	33.60	110.10	7.88	
Bottom	20.58	7.84	33.80	113.50	8.12	

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	18.53					
010cm	21.66	7.87	33.50	79.20	5.57	2.75
050cm	21.71	7.87	33.50	77.60	5.45	
100cm	21.80	7.87	33.50	80.20	5.65	
150cm	21.86	7.87	33.50	84.60	5.95	
200cm	21.85	7.87	33.50	86.10	6.01	
250cm	21.67	7.86	33.50	83.50	5.88	
300cm	21.62	7.87	33.50	86.00	6.06	
350cm	21.43	7.88	33.50	88.00	6.22	
400cm	21.39	7.88	33.50	84.40	5.97	
450cm	21.36	7.88	33.50	87.60	6.14	
500cm	21.33	7.88	33.50	84.00	5.94	
550cm	21.32	7.89	33.50	84.80	6.00	
600cm	21.28	7.89	33.60	83.00	5.88	
650cm	21.26	7.89	33.60	74.60	5.48	
700cm	21.23	7.86	33.90	71.90	5.08	
750cm	21.25	7.87	33.80	81.00	5.73	
Bottom	21.21	7.87	34.00	68.00	4.81	

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	17.20					
010cm	19.52	7.99	34.10	95.50	6.95	5.75
050cm	19.88	7.95	33.80	95.70	7.02	
100cm	19.90	7.95	33.80	100.80	7.30	
150cm	20.00	7.94	34.00	100.10	7.23	
200cm	19.94	7.94	34.00	102.00	7.36	
250cm	20.05	7.95	34.00	104.30	7.52	
300cm	20.02	7.94	31.20	100.30	7.23	
350cm	20.10	7.93	34.10	102.20	7.36	
400cm	20.15	7.93	34.10	102.80	7.39	
450cm	20.24	7.94	34.20	103.80	7.45	
500cm	20.26	7.94	34.20	104.00	7.46	
550cm	20.34	7.94	34.30	101.00	6.84	
600cm	20.35	7.95	34.30	101.00	7.14	
650cm	20.45	7.95	34.40	98.00	7.00	
700cm	20.49	7.96	34.40	99.60	7.11	
750cm	20.52	7.96	34.50	98.10	6.99	
800cm	20.57	7.96	34.50	97.90	6.97	
850cm	20.62	7.96	34.50	97.40	6.93	
900cm	20.62	7.97	34.60	96.00	6.81	
Bottom	20.60	7.97	34.70	93.90	6.68	

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	19.44					
010cm	22.98	7.84	33.70	80.20	5.48	3.25
050cm	23.31	7.83	33.70	86.40	5.93	
100cm	23.56	7.83	33.50	94.00	6.47	
150cm	23.59	7.83	33.50	98.80	6.74	
200cm	23.13	7.84	33.50	98.60	6.74	
250cm	23.34	7.87	33.50	98.60	6.76	
300cm	22.86	7.85	33.40	101.10	6.98	
350cm	22.41	7.84	33.40	91.70	6.34	
400cm	22.11	7.85	33.40	86.10	6.03	
450cm	21.87	7.85	33.50	83.70	5.84	
500cm	21.72	7.85	33.50	77.40	5.56	
550cm	21.61	7.85	33.60	78.30	5.47	
Bottom	21.51	7.88	33.60	81.40	5.75	

Eraring Ash Dam Effluent Quality Monitoring

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	0.08	ug/L	-	04/05/2017
Copper	0.80	ug/L	-	04/05/2017
Iron	15.0	ug/L	-	04/05/2017
Lead	0.10	ug/L	-	04/05/2017
Manganese	12.6	ug/L	-	04/05/2017
Nitrite and Nitrate as N	832	ug/L	-	04/05/2017
Phosphorus Reactive as P - Total	275	ug/L	-	04/05/2017
Phosphorus as P - Total	354	ug/L	-	04/05/2017
Selenium	17.2	ug/L	-	04/05/2017
Suspended Solids (SS)	5,000	ug/L	-	04/05/2017
Zinc	1.00	ug/L	-	04/05/2017
pH	8.9	-	-	04/05/2017

Eraring Cooling Water Inlet Canal

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	0.90	ug/L	-	04/05/2017
Iron	5.0	ug/L	-	04/05/2017
Selenium	1.00	ug/L	-	04/05/2017
Temperature - Average	19.7	deg C	-	May 2017
Temperature - Minimum	17.5	deg C	-	May 2017
Temperature - Maximum	21.4	deg C	-	May 2017

Eraring Cooling Water Outlet Canal

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

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Copper	1.30	ug/L	5	04/05/2017
Iron	8.0	ug/L	300	04/05/2017
Selenium	1.00	ug/L	2	04/05/2017
Temperature - Average	28.0	deg C	35	May 2017
Temperature - Minimum	22.8	deg C	35	May 2017
Temperature - Maximum	30.9	deg C	35	May 2017
Maximum Daily Discharge from Ash Dam	15.0	ML	150	May 2017
Monthly Discharge from Ash Dam	257	ML	-	May 2017

Emergency Discharge - Toe Drain Pond

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	252	ug/L	-	04/05/2017
Phosphorus as P - Total	70	ug/L	-	04/05/2017
pH	7.1	-	-	04/05/2017