



Eraring Power Station - EPA Licence 1429

Rocky Point Rd, Morristown NSW 2264

Coal Unloader - EPA Licence 4297

Eraring Coal Delivery Facility, Construction Rd, Dora Creek NSW 2264

Environmental Monitoring Data

August 2014



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 - Aug	190	240	161	11	17	7	239	274	190
2 - Aug	220	253	186	19	25	15	185	230	154
3 - Aug	214	270	178	19	25	13	168	210	148
4 - Aug	217	262	187	19	28	13	198	224	170
5 - Aug	199	224	172	18	27	11	191	213	176
6 - Aug	187	220	147	17	27	10	202	224	175
7 - Aug	184	217	164	17	26	8	194	222	175
8 - Aug	186	243	158	17	28	9	224	242	199
9 - Aug	141	185	118	14	26	6	198	225	155
10 - Aug	173	258	131	13	19	7	168	188	151
11 - Aug	211	248	172	17	27	11	174	202	154
12 - Aug	185	207	159	18	26	12	217	239	190
13 - Aug	189	219	166	16	24	12	220	235	200
14 - Aug	199	254	159	16	28	8	202	229	188
15 - Aug	187	239	160	15	22	9	191	205	184
16 - Aug	183	214	152	15	26	7	186	212	161
17 - Aug	184	220	154	13	18	7	159	164	151
18 - Aug	195	219	173	14	19	8	166	186	144
19 - Aug	178	193	163	14	21	10	225	250	184
20 - Aug	170	190	158	15	20	11	218	228	211
21 - Aug	174	217	152	16	22	11	216	236	196
22 - Aug	175	199	147	16	22	11	213	221	206
23 - Aug	196	250	164	16	23	8	189	209	171
24 - Aug	202	256	167	15	24	7	175	192	160
25 - Aug	201	229	166	15	26	8	181	211	162
26 - Aug	205	226	177	16	19	11	180	198	168
27 - Aug	185	212	164	14	16	10	182	191	172
28 - Aug	177	199	156	15	23	10	185	207	176
29 - Aug	198	236	171	16	21	13	179	208	161
30 - Aug	219	242	182	15	19	10	165	178	155
31 - Aug	189	231	156	14	19	9	166	176	159

Unit 2 Boiler Continuous Emission Monitoring Summary

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

- - 30th and 31st, Unit out of service due to a 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 - Aug	154	207	115	16	19	13	251	278	203
2 - Aug	190	238	145	19	22	16	197	232	169
3 - Aug	179	219	139	18	22	16	188	221	165
4 - Aug	182	210	131	19	23	16	218	252	183
5 - Aug	170	187	159	19	22	16	223	256	199
6 - Aug	162	174	148	14	22	7	220	253	184
7 - Aug	164	175	149	15	20	7	213	290	167
8 - Aug	165	182	153	16	20	13	248	289	219
9 - Aug	151	175	129	14	17	10	228	267	173
10 - Aug	187	206	159	13	17	10	179	187	173
11 - Aug	171	188	161	15	20	12	188	214	172
12 - Aug	160	167	153	15	18	12	220	245	198
13 - Aug	168	203	142	16	20	12	204	255	168
14 - Aug	170	201	121	17	21	13	207	252	178
15 - Aug	166	200	116	16	20	12	205	225	186
16 - Aug	159	193	112	16	20	13	204	223	179
17 - Aug	162	219	125	15	19	11	181	194	173
18 - Aug	150	175	122	15	19	11	180	198	168
19 - Aug	141	171	121	16	20	12	208	223	200
20 - Aug	155	172	126	16	18	11	242	275	211
21 - Aug	156	184	137	16	19	12	204	232	182
22 - Aug	159	197	130	16	20	12	236	269	214
23 - Aug	134	163	113	15	20	12	193	231	172
24 - Aug	138	179	118	15	20	12	183	193	174
25 - Aug	167	214	125	17	20	13	188	198	180
26 - Aug	176	213	127	17	21	12	185	194	154
27 - Aug	165	192	121	17	20	12	184	195	171
28 - Aug	151	170	132	17	19	13	199	209	183
29 - Aug	152	177	122	15	24	10	199	208	187
30 - Aug	0	0	0	0	0	0	0	0	0
31 - Aug	0	0	0	0	0	0	0	0	0

Unit 3 Boiler Continuous Emission Monitoring Summary

EPA Identification no. 13 - Air emissions monitoring, Boiler 3 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 - Aug	196	222	165	4	9	2	248	277	202
2 - Aug	181	206	148	5	8	3	186	207	166
3 - Aug	196	217	162	5	8	3	168	197	121
4 - Aug	186	209	158	5	7	3	220	266	173
5 - Aug	156	167	137	5	8	2	192	205	177
6 - Aug	161	171	152	5	8	3	201	219	173
7 - Aug	215	264	159	7	11	4	207	230	190
8 - Aug	235	276	204	7	11	4	237	257	191
9 - Aug	194	250	166	5	9	3	222	247	190
10 - Aug	218	288	192	5	9	3	172	182	163
11 - Aug	247	281	195	8	12	4	179	213	159
12 - Aug	200	229	176	6	11	4	238	263	183
13 - Aug	194	212	168	5	8	4	226	245	194
14 - Aug	193	207	163	6	9	4	219	227	173
15 - Aug	188	200	173	5	7	3	196	220	173
16 - Aug	200	260	173	6	8	3	207	232	177
17 - Aug	216	258	184	5	8	3	191	207	172
18 - Aug	259	332	177	5	10	3	181	192	162
19 - Aug	245	275	217	6	9	4	210	246	161
20 - Aug	253	274	222	5	9	4	239	262	183
21 - Aug	255	293	228	6	9	4	221	239	188
22 - Aug	214	246	187	6	10	3	217	230	184
23 - Aug	216	297	173	6	9	4	196	223	179
24 - Aug	223	288	175	5	9	3	182	201	169
25 - Aug	239	276	202	6	10	3	183	221	164
26 - Aug	219	256	173	7	11	4	190	214	172
27 - Aug	217	235	193	6	12	3	181	196	163
28 - Aug	199	216	181	7	11	4	197	210	187
29 - Aug	214	233	198	7	12	5	183	202	174
30 - Aug	220	241	179	7	10	3	175	182	161
31 - Aug	201	241	169	6	10	3	169	175	158

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 - Aug	166	212	137	6	10	5	231	251	192
2 - Aug	223	281	169	8	10	6	191	236	164
3 - Aug	218	295	157	8	10	7	171	192	157
4 - Aug	239	291	163	8	12	6	217	244	196
5 - Aug	229	251	192	8	12	6	201	213	189
6 - Aug	203	244	162	7	10	6	215	228	202
7 - Aug	190	233	141	8	10	6	207	245	185
8 - Aug	201	243	175	7	11	6	241	272	204
9 - Aug	182	264	155	7	12	5	212	242	178
10 - Aug	204	300	176	7	11	5	171	188	160
11 - Aug	220	247	184	8	11	7	175	189	166
12 - Aug	177	215	138	8	11	7	211	231	194
13 - Aug	186	221	137	8	13	7	205	233	180
14 - Aug	175	206	135	8	10	6	202	233	176
15 - Aug	171	216	101	7	9	6	181	197	160
16 - Aug	185	217	165	7	11	6	168	197	135
17 - Aug	199	282	136	7	11	6	152	169	132
18 - Aug	217	326	162	7	11	6	160	176	141
19 - Aug	208	242	177	6	9	6	196	224	166
20 - Aug	194	226	166	7	10	6	199	222	172
21 - Aug	204	230	181	7	11	6	183	213	159
22 - Aug	196	222	173	7	10	6	219	242	192
23 - Aug	186	244	147	7	9	5	177	200	147
24 - Aug	189	254	149	7	11	5	162	174	144
25 - Aug	202	235	151	7	10	5	163	188	147
26 - Aug	227	263	154	7	10	6	171	193	144
27 - Aug	211	249	155	6	9	6	173	185	152
28 - Aug	228	259	177	7	10	5	176	188	160
29 - Aug	243	278	190	7	9	6	181	191	155
30 - Aug	254	276	196	9	10	8	165	184	137
31 - Aug	195	274	163	9	12	7	163	172	155

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	23/02/2014
Carbon Dioxide (Wet)	10.2	%	-	23/02/2014
Carbon Monoxide	2.9	mg/m3	-	23/02/2014
Chlorine	0.020	mg/m3	300	23/02/2014
Copper	0.0013	mg/m3	-	23/02/2014
Dry Gas Density	0.93	kg/m3	-	23/02/2014
Fluoride As HF - Total	6.4	mg/m3	50	23/02/2014
Hazardous Substances (Metals) - Total	0.07	mg/m3	1.00	23/02/2014
Hydrogen Chloride	3.1	mg/m3	100.0	23/02/2014
Mercury	0.0011	mg/m3	0.200	23/02/2014
Moisture	7.1	%	-	23/02/2014
Particulates - Total	7.3	mg/m3	50	23/02/2014
Stack Gas Molecular Weight	29	kg/k-mole	-	23/02/2014
Temperature	109.0	degC	-	23/02/2014
Velocity	11.8	m/sec	-	23/02/2014
Volatile Organic Compounds (VOC) - Total	4.7	mg/m3	-	23/02/2014
Volumetric Flow Rate (Dry At STP)	283	m3/sec	-	23/02/2014

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	0.0009	mg/m3	0.20	24/08/2014
Carbon Dioxide (Wet)	7.7	%	-	24/08/2014
Carbon Monoxide	0.90	mg/m3	-	06/05/2013
Chlorine	1.8	mg/m3	300	24/08/2014
Copper	0.0009	mg/m3	-	24/08/2014
Dry Gas Density	1.4	kg/m3	-	24/08/2014
Fluoride As HF - Total	7.0	mg/m3	50	24/08/2014
Hazardous Substances (Metals) - Total	0.014	mg/m3	1.00	24/08/2014
Hydrogen Chloride	1.8	mg/m3	100.0	24/08/2014
Mercury	0.00000	mg/m3	0.200	24/08/2014
Moisture	4.9	%	-	24/08/2014
Particulates - Total	13.0	mg/m3	50	24/08/2014
Stack Gas Molecular Weight	30	kg/k-mole	-	24/08/2014
Temperature	113.0	degC	-	24/08/2014
Velocity	10.5	m/sec	-	24/08/2014
Volatile Organic Compounds (VOC) - Total	0.08	mg/m3	-	24/08/2014
Volumetric Flow Rate (Dry At STP)	255	m3/sec	-	24/08/2014

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	0.0011	mg/m3	0.20	05/08/2013
Carbon Dioxide (Wet)	10.3	%	-	05/08/2013
Carbon Monoxide	9.9	mg/m3	-	05/08/2013
Chlorine	0.30	mg/m3	200	05/08/2013
Copper	0.0011	mg/m3	-	05/08/2013
Dry Gas Density	0.94	kg/m3	-	05/08/2013
Fluoride As HF - Total	9.6	mg/m3	50	05/08/2013
Hazardous Substances (Metals) - Total	0.06	mg/m3	1.00	05/08/2013
Hydrogen Chloride	4.1	mg/m3	100.0	05/08/2013
Mercury	0.0007	mg/m3	0.200	05/08/2013
Moisture	6.7	%	-	05/08/2013
Particulates - Total	15.0	mg/m3	50	05/08/2013
Stack Gas Molecular Weight	29	kg/k-mole	-	05/08/2013
Temperature	103.0	degC	-	05/08/2013
Velocity	11.1	m/sec	-	05/08/2013
Volatile Organic Compounds (VOC) - Total	5.7	mg/m3	-	05/08/2013
Volumetric Flow Rate (Dry At STP)	270	m3/sec	-	05/08/2013

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	0.0010	mg/m3	0.20	13/10/2013
Carbon Dioxide (Wet)	9.4	%	-	13/10/2013
Carbon Monoxide	9.3	mg/m3	-	13/10/2013
Chlorine	0.040	mg/m3	200	13/10/2013
Copper	0.0010	mg/m3	-	13/10/2013
Dry Gas Density	0.94	kg/m3	-	13/10/2013
Fluoride As HF - Total	7.5	mg/m3	50	13/10/2013
Hazardous Substances (Metals) - Total	0.027	mg/m3	1.00	13/10/2013
Hydrogen Chloride	2.8	mg/m3	100.0	13/10/2013
Mercury	0.0022	mg/m3	0.200	13/10/2013
Moisture	6.5	%	-	13/10/2013
Particulates - Total	7.9	mg/m3	50	13/10/2013
Stack Gas Molecular Weight	29	kg/k-mole	-	13/10/2013
Temperature	104.0	degC	-	13/10/2013
Velocity	15.4	m/sec	-	13/10/2013
Volatile Organic Compounds (VOC) - Total	4.7	mg/m3	-	13/10/2013
Volumetric Flow Rate (Dry At STP)	375	m3/sec	-	13/10/2013

Eraring Coal Unloader Dust Gauges

EPA Identification no. 18 - Depositional dust monitoring within 1 km of the coal handling operations

	Deposited Matter		
	g/m2/month		
	Ash	Combustible	Insolubles
U1	0.10	0.10	0.20
U2	0.20	0.10	0.30
U3	0.10	0.20	0.30
U4	0.80	0.50	1.30
U5	0.20	0.20	0.40
U6	1.10	0.60	1.70

Eraring Due Diligence Dust Gauges

EPA Identification no. 18 - Depositional dust monitoring within 1 km of the coal handling operations

	Deposited Matter		
	g/m2/month		
	Ash	Combustible	Insolubles
E1	0.50	0.70	1.20
E2	0.70	0.90	1.60
E3	0.20	0.20	0.40
E4	0.20	0.20	0.40
E5	0.10	0.10	0.20
E6	1.60	0.50	2.10

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
010cm	15.08	7.98	36.01	99.60	8.02	3.00
050cm	14.75	7.98	35.99	99.70	8.08	
100cm	14.45	7.99	36.03	99.80	8.14	
150cm	14.44	7.99	36.03	99.70	8.13	
200cm	14.43	7.99	36.02	100.20	8.17	
250cm	14.45	7.99	36.02	100.30	8.17	
Bottom	14.45	8.00	36.03	100.70	8.21	

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
010cm	15.12	8.00	35.70	101.80	8.21	5.00
050cm	15.14	7.99	35.74	101.70	8.19	
100cm	14.90	7.98	35.73	101.20	8.18	
150cm	14.84	7.98	35.75	101.00	8.18	
200cm	14.71	7.99	35.76	100.60	8.17	
250cm	14.66	7.99	35.75	100.60	8.18	
300cm	14.63	7.99	35.76	100.60	8.18	
350cm	14.64	8.00	35.77	100.50	8.17	
400cm	14.61	7.99	35.75	100.20	8.16	
450cm	14.59	7.99	35.77	100.20	8.16	
500cm	14.58	7.99	35.76	100.20	8.16	
550cm	14.59	7.99	35.76	100.20	8.16	
600cm	14.62	7.99	35.78	100.20	8.15	
650cm	14.62	7.99	35.81	100.60	8.18	
700cm	14.63	7.99	35.79	100.90	8.21	
750cm	14.65	7.99	35.77	100.80	8.20	
Bottom	14.65	7.99	35.79	100.30	8.15	

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
010cm	14.33	7.96	36.34	101.40	8.27	9.50
050cm	14.26	7.97	36.36	101.50	8.29	
100cm	14.20	7.97	36.35	101.10	8.26	
150cm	14.17	7.98	36.36	101.10	8.27	
200cm	14.17	7.98	36.35	101.10	8.27	
250cm	14.17	8.00	36.35	101.10	8.27	
300cm	14.16	8.01	36.36	101.00	8.27	
350cm	14.16	8.00	36.37	101.10	8.27	
400cm	14.17	8.01	36.36	101.10	8.27	
450cm	14.19	8.00	36.36	101.10	8.26	
500cm	14.18	8.01	36.36	101.10	8.27	
550cm	14.16	8.01	36.36	101.00	8.26	
600cm	14.17	8.04	36.37	101.10	8.27	
650cm	14.17	8.03	36.36	101.20	8.28	
700cm	14.17	8.02	36.36	101.00	8.26	
750cm	14.17	8.02	36.36	101.10	8.27	
800cm	14.17	8.01	36.37	101.10	8.27	
850cm	14.18	8.01	36.37	101.00	8.26	
900cm	14.18	8.01	36.35	101.10	8.27	
950cm	14.18	8.01	36.35	101.10	8.27	
Bottom	14.18	8.01	36.35	101.10	8.27	

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
010cm	19.52	7.96	36.18	121.80	9.00	3.50
050cm	19.51	7.96	36.19	121.80	9.00	
100cm	19.25	7.95	36.13	122.10	9.07	
150cm	19.00	7.96	36.02	122.10	9.12	
200cm	18.76	7.96	36.20	121.40	9.09	
250cm	15.73	7.98	36.23	105.30	8.36	
300cm	15.58	7.98	36.04	101.40	8.08	
350cm	15.48	7.99	36.03	101.30	8.09	
400cm	15.42	7.98	36.09	100.70	8.05	
450cm	15.44	7.97	36.08	96.50	7.71	
500cm	15.44	7.97	35.98	94.80	7.58	
550cm	15.44	7.98	36.08	89.30	7.13	
Bottom	15.44	7.98	36.08	89.30	7.13	

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>
Nitrite and Nitrate as N	53	ug/L	-	07/08/2014
Phosphorus Reactive as P - Total	144	ug/L	-	07/08/2014
Phosphorus as P - Total	229	ug/L	-	07/08/2014
Selenium	42	ug/L	-	07/08/2014
Suspended Solids (SS)	5.0	mg/L	-	07/08/2014
pH	9.4	-	-	07/08/2014

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>
Temperature - Average	15.5	deg C	-	Aug 2014
Temperature - Minimum	13.7	deg C	-	Aug 2014
Temperature - Maximum	17.6	deg C	-	Aug 2014

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>
Temperature - Average	24.1	deg C	35	Aug 2014
Temperature - Minimum	18.2	deg C	35	Aug 2014
Temperature - Maximum	31.8	deg C	35	Aug 2014
Maximum Daily Discharge from Ash Dam	60.0	ML	150000	Aug 2014
Monthly Discharge from Ash Dam	484	ML	-	Aug 2014

- 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 37.5 degC for up to 131hrs over the reporting period.

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	70	ug/L	-	07/08/2014
Phosphorus as P - Total	923	ug/L	-	07/08/2014
pH	6.9	-	-	07/08/2014