



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

March 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 - Mar	169	191	149	11	15	9	215	250	188
2 - Mar	172	186	162	11	15	9	207	249	173
3 - Mar	162	186	134	14	19	10	203	221	182
4 - Mar	169	197	143	14	18	9	221	238	208
5 - Mar	167	202	144	14	20	10	208	227	188
6 - Mar	170	197	156	13	19	9	201	215	192
7 - Mar	167	191	146	11	17	9	212	223	198
8 - Mar	176	202	151	10	13	8	209	226	191
9 - Mar	195	213	172	11	19	8	215	235	191
10 - Mar	184	222	149	12	18	8	231	260	184
11 - Mar	160	210	125	13	19	9	199	219	177
12 - Mar	179	202	163	14	22	9	215	255	192
13 - Mar	172	192	160	14	20	9	239	266	215
14 - Mar	185	211	163	14	21	10	229	244	211
15 - Mar	175	203	153	11	17	8	223	242	208
16 - Mar	200	212	185	9	12	8	248	288	214
17 - Mar	188	222	152	14	21	9	194	221	177
18 - Mar	173	187	146	15	25	11	231	246	221
19 - Mar	160	190	141	15	22	10	221	247	187
20 - Mar	154	167	127	15	21	10	219	243	190
21 - Mar	141	176	102	14	20	9	216	239	182
22 - Mar	116	137	101	9	14	6	205	232	172
23 - Mar	124	167	106	10	17	7	210	233	200
24 - Mar	151	177	112	13	19	9	194	209	179
25 - Mar	133	154	102	13	21	9	195	208	184
26 - Mar	123	134	101	13	19	8	204	213	192
27 - Mar	126	162	106	14	19	9	199	207	187
28 - Mar	176	197	149	15	19	10	202	207	194
29 - Mar	166	195	142	11	18	8	206	214	194
30 - Mar	177	206	143	11	19	9	199	206	188
31 - Mar	169	201	127	15	20	10	191	198	182

Unit 2 Boiler Continuous Emission Monitoring Summary

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

- 1st and 2nd - SOx and NOx analyser failure. No data available.

	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 - Mar	0	0	0	9	14	7	0	0	0
2 - Mar	0	0	0	11	15	8	0	0	0
3 - Mar	154	208	127	7	11	4	235	259	214
4 - Mar	166	207	120	7	12	4	252	280	220
5 - Mar	180	214	142	7	13	2	257	301	132
6 - Mar	165	183	115	7	12	3	247	297	212
7 - Mar	114	121	102	6	10	3	242	264	208
8 - Mar	118	124	108	7	12	6	257	292	103
9 - Mar	119	129	105	8	12	5	232	289	148
10 - Mar	134	168	123	7	12	3	283	377	165
11 - Mar	157	171	133	7	12	2	203	253	166
12 - Mar	159	189	118	6	13	2	221	287	112
13 - Mar	135	157	107	6	11	3	245	275	231
14 - Mar	144	179	107	6	11	3	249	263	232
15 - Mar	167	217	146	6	10	3	232	248	209
16 - Mar	231	241	221	6	11	5	228	248	207
17 - Mar	196	243	161	6	12	3	208	229	189
18 - Mar	182	250	149	5	12	3	254	287	233
19 - Mar	165	240	127	5	11	3	237	274	182
20 - Mar	184	217	137	5	11	3	222	260	182
21 - Mar	172	204	137	5	12	3	222	250	204
22 - Mar	176	191	167	7	10	5	235	259	210
23 - Mar	171	187	152	6	10	3	225	237	213
24 - Mar	178	191	167	6	10	3	199	223	176
25 - Mar	172	192	150	5	10	3	194	207	186
26 - Mar	160	209	139	5	10	3	207	213	196
27 - Mar	148	173	129	5	11	2	207	211	198
28 - Mar	172	185	164	5	11	3	211	224	201
29 - Mar	170	227	120	5	8	3	232	240	220
30 - Mar	142	156	122	6	10	2	226	235	211
31 - Mar	168	208	134	6	12	3	211	224	202

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 - Mar	167	216	140	9	14	8	281	328	252
2 - Mar	178	200	152	9	12	8	259	318	222
3 - Mar	173	198	135	9	13	7	249	299	103
4 - Mar	185	200	147	10	14	7	273	327	254
5 - Mar	170	207	146	9	13	7	292	342	249
6 - Mar	157	199	78	9	13	7	261	287	200
7 - Mar	162	181	129	8	12	6	281	298	271
8 - Mar	168	203	151	9	12	8	279	332	241
9 - Mar	173	197	157	9	12	8	275	303	214
10 - Mar	173	192	153	9	14	7	269	321	220
11 - Mar	163	193	139	9	13	7	221	260	196
12 - Mar	160	182	143	8	13	6	231	246	208
13 - Mar	155	169	135	8	12	6	238	253	218
14 - Mar	140	154	127	9	13	7	248	269	224
15 - Mar	148	161	134	8	11	6	236	261	217
16 - Mar	169	207	150	8	11	6	252	286	231
17 - Mar	177	221	144	9	14	7	199	223	177
18 - Mar	158	198	143	10	15	7	237	251	211
19 - Mar	178	203	154	9	14	7	235	264	204
20 - Mar	167	186	141	9	12	7	231	261	203
21 - Mar	144	168	118	8	13	6	222	247	204
22 - Mar	145	159	122	7	12	6	237	261	217
23 - Mar	139	159	117	6	10	6	240	260	210
24 - Mar	142	176	124	7	11	6	200	209	189
25 - Mar	177	191	157	8	13	6	202	215	192
26 - Mar	150	198	134	8	13	6	200	205	196
27 - Mar	136	146	116	8	12	7	201	208	192
28 - Mar	116	128	109	8	11	6	203	207	198
29 - Mar	134	149	117	8	11	7	206	218	198
30 - Mar	134	164	119	8	12	7	207	218	193
31 - Mar	175	226	126	9	13	7	206	217	195

Unit 4 Boiler Continuous Emission Monitoring Summary

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

- Unit 4 taken out of service 29th for scheduled maintenance.

	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 - Mar	173	189	144	3	4	3	172	185	152
2 - Mar	191	201	158	4	6	3	190	223	147
3 - Mar	178	196	136	3	5	3	164	185	142
4 - Mar	174	189	151	3	5	3	184	193	178
5 - Mar	162	175	149	3	3	2	195	207	168
6 - Mar	166	196	152	3	5	2	173	194	159
7 - Mar	171	194	146	4	4	4	178	209	164
8 - Mar	161	180	142	3	6	2	190	208	180
9 - Mar	208	244	175	3	5	2	181	200	159
10 - Mar	218	257	151	4	4	2	174	189	166
11 - Mar	188	252	147	3	5	3	188	221	153
12 - Mar	166	198	143	3	4	2	231	286	201
13 - Mar	140	150	136	3	3	3	234	264	213
14 - Mar	150	166	136	4	4	4	245	268	230
15 - Mar	136	152	119	3	5	3	228	255	203
16 - Mar	161	180	147	5	5	5	230	260	205
17 - Mar	159	172	140	3	3	3	198	223	172
18 - Mar	170	183	161	3	4	3	243	267	216
19 - Mar	156	176	135	5	5	5	224	258	178
20 - Mar	179	204	125	4	4	4	212	258	170
21 - Mar	163	190	137	4	4	4	212	252	155
22 - Mar	161	180	146	3	4	2	219	240	201
23 - Mar	162	179	131	5	5	5	224	248	207
24 - Mar	157	195	139	4	4	4	202	223	178
25 - Mar	186	230	170	3	3	3	193	206	174
26 - Mar	210	231	140	0	0	0	205	211	197
27 - Mar	157	207	112	6	6	6	213	220	198
28 - Mar	173	267	125	4	4	4	204	210	200
29 - Mar	0	0	0	0	0	0	0	0	0
30 - Mar	0	0	0	0	0	0	0	0	0
31 - Mar	0	0	0	0	0	0	0	0	0

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	0.0011	mg/m3	0.20	06/05/2013
Carbon Dioxide (Wet)	10.4	%	-	06/05/2013
Carbon Monoxide	0.90	mg/m3	-	06/05/2013
Chlorine	0.28	mg/m3	300	06/05/2013
Copper	0.0011	mg/m3	-	06/05/2013
Dry Gas Density	0.93	kg/m3	-	06/05/2013
Fluoride As HF - Total	6.4	mg/m3	50	06/05/2013
Hazardous Substances (Metals) - Total	0.025	mg/m3	1.00	06/05/2013
Hydrogen Chloride	3.2	mg/m3	100.0	06/05/2013
Mercury	0.0022	mg/m3	0.200	06/05/2013
Moisture	7.5	%	-	06/05/2013
Particulates - Total	3.8	mg/m3	50	06/05/2013
Stack Gas Molecular Weight	29	kg/k-mole	-	06/05/2013
Temperature	108.0	degC	-	06/05/2013
Velocity	12.2	m/sec	-	06/05/2013
Volatile Organic Compounds (VOC) - Total	5.4	mg/m3	-	06/05/2013
Volumetric Flow Rate (Dry At STP)	293	m3/sec	-	06/05/2013

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	0.20	0.20	0.40
U2	0.20	0.20	0.40
U3	0.50	0.80	1.30
U4	0.90	0.60	1.50
U5	0.40	0.80	1.20
U6	0.40	0.40	0.80

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	0.60	0.30	0.90
E2	0.40	0.20	0.60
E3	1.90	1.90	3.80
E4	0.50	0.30	0.80
E5	0.40	0.20	0.60
E6	0.30	0.10	0.40

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	24.50					
010cm	27.84	8.22	29.82	112.80	7.48	2.20
050cm	27.80	8.22	29.84	112.90	7.49	
100cm	27.42	8.21	31.69	111.70	7.38	
150cm	26.80	8.16	33.49	95.50	6.31	
200cm	26.29	8.06	35.58	74.70	4.92	
250cm	26.01	8.01	36.34	57.20	3.77	
Bottom	26.04	8.00	36.34	55.30	3.60	

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	24.30					
010cm	25.72	8.29	30.10	109.60	7.52	3.40
050cm	25.71	8.28	30.11	109.80	7.53	
100cm	25.43	8.28	30.55	109.70	7.54	
150cm	26.37	8.24	33.41	107.30	7.15	
200cm	26.33	8.24	34.07	106.30	7.06	
250cm	25.81	8.24	34.63	103.90	6.94	
300cm	26.05	8.21	36.02	100.00	6.59	
350cm	26.05	8.18	36.37	96.00	6.32	
400cm	26.00	8.19	36.46	90.70	5.98	
450cm	25.96	8.17	36.94	85.90	5.64	
500cm	25.92	8.10	37.10	80.10	5.26	
550cm	25.85	8.09	37.14	67.70	4.45	
600cm	25.77	8.08	37.18	63.70	4.19	
650cm	25.73	8.05	37.18	58.20	3.84	
700cm	25.71	8.02	37.10	54.40	3.59	
Bottom	25.71	8.03	37.18	50.20	3.31	

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	22.40					
010cm	24.59	8.35	32.42	123.50	8.53	2.70
050cm	24.56	8.35	32.42	123.40	8.52	
100cm	24.49	8.35	32.56	123.70	8.54	
150cm	24.40	8.35	32.88	124.40	8.59	
200cm	24.28	8.34	33.34	122.90	8.48	
250cm	24.24	8.34	33.38	121.70	8.38	
300cm	24.29	8.33	33.61	119.60	8.24	
350cm	24.02	8.27	35.00	113.10	7.76	
400cm	23.83	8.25	35.25	101.50	6.99	
450cm	23.77	8.22	35.65	95.10	6.54	
500cm	23.76	8.21	35.93	90.40	6.20	
550cm	23.81	8.21	35.94	89.20	6.12	
600cm	23.62	8.20	36.11	87.50	6.01	
650cm	23.51	8.18	36.16	85.60	5.89	
700cm	23.51	8.20	36.27	83.90	5.77	
750cm	23.44	8.20	36.27	83.80	5.77	
800cm	23.40	8.13	36.52	81.00	5.57	
850cm	23.42	8.09	36.54	65.40	4.50	
900cm	23.42	8.06	36.54	53.10	3.65	
Bottom	23.42	8.05	36.55	49.60	3.41	

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	26.20					
010cm	29.63	8.23	28.39	126.80	8.23	2.40
050cm	29.63	8.23	28.41	126.60	8.22	
100cm	29.12	8.24	29.32	127.80	8.32	
150cm	27.94	8.24	31.78	130.60	8.55	
200cm	25.61	8.24	34.94	106.80	7.14	
250cm	25.64	8.24	34.94	101.10	6.76	
300cm	25.55	8.17	36.40	94.10	6.24	
350cm	25.79	8.13	36.58	78.30	5.17	
400cm	25.67	8.13	36.82	77.10	5.09	
450cm	25.70	8.10	36.88	70.70	4.67	
500cm	25.67	8.07	37.10	65.80	4.34	
550cm	25.74	7.91	36.96	38.70	2.55	
Bottom	25.75	7.90	37.07	35.60	2.35	

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	0.20	ug/L	-	06/03/2014
Copper	2.0	ug/L	-	06/03/2014
Iron	17.0	ug/L	-	06/03/2014
Lead	0.20	ug/L	-	06/03/2014
Manganese	23.4	ug/L	-	06/03/2014
Nitrite and Nitrate as N	22.0	ug/L	-	06/03/2014
Phosphorus Reactive as P - Total	295	ug/L	-	06/03/2014
Phosphorus as P - Total	277	ug/L	-	06/03/2014
Selenium	10.0	ug/L	-	06/03/2014
Suspended Solids (SS)	5.0	mg/L	-	06/03/2014
Zinc	5.0	ug/L	-	06/03/2014
pH	8.6	-	-	06/03/2014

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>
Copper	3.00	ug/L	-	06/03/2014
Iron	12.0	ug/L	-	06/03/2014
Selenium	1.00	ug/L	-	06/03/2014
Temperature - Average	25.7	deg C	-	Mar 2014
Temperature - Minimum	23.1	deg C	-	Mar 2014
Temperature - Maximum	28.1	deg C	-	Mar 2014

Eraring Cooling Water Outlet Canal

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

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Copper	2.00	ug/L	5	06/03/2014
Iron	40.0	ug/L	300	06/03/2014
Selenium	1.00	ug/L	2	06/03/2014
Temperature - Average	31.3	deg C	35	Mar 2014
Temperature - Minimum	27.0	deg C	35	Mar 2014
Temperature - Maximum	35.3	deg C	35	Mar 2014
Maximum Daily Discharge from Ash Dam	31.1	ML	150000	Mar 2014
Monthly Discharge from Ash Dam	433	ML	-	Mar 2014

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	7.0	ug/L	-	06/03/2014
Phosphorus as P - Total	50	ug/L	-	06/03/2014
pH	6.7	-	-	06/03/2014