



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

April 2013



Unit 1 Boiler Continuous Emission Monitoring Summary

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

- Blank Cells indicate - Unit 1 Out of Service, 14th April 2013 -

	NOX			Particulates			SOX		
	ppm (12% CO2)			mg/m3			ppm (12% CO2)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Apr	132.11	145.97	121.66	12.44	13.41	10.87	160.33	176.60	147.76
2 - Apr	125.38	133.64	114.92	13.13	14.87	12.35	159.04	173.80	145.80
3 - Apr	119.09	128.37	110.22	13.77	15.39	12.85	156.79	163.93	148.66
4 - Apr	142.11	168.75	112.89	14.32	15.44	13.37	165.95	184.67	151.82
5 - Apr	130.83	157.26	109.99	13.90	14.93	12.75	170.24	185.86	153.41
6 - Apr	168.47	184.59	159.08	14.20	16.29	13.24	151.88	178.11	137.13
7 - Apr	159.68	174.43	117.39	13.96	15.85	12.76	147.33	167.26	134.40
8 - Apr	148.55	184.27	122.69	13.42	15.34	12.28	147.39	166.01	126.07
9 - Apr	166.73	179.22	151.92	13.49	15.02	12.47	147.58	164.46	131.35
10 - Apr	161.70	170.61	140.61	13.74	14.51	12.98	153.07	162.95	142.38
11 - Apr	153.67	166.43	140.83	13.51	15.01	11.97	160.06	182.70	137.46
12 - Apr	141.05	165.67	106.12	13.18	14.52	11.96	148.37	158.88	137.56
13 - Apr	120.04	169.54	79.02	12.47	14.98	8.33	148.37	213.36	127.35
14 - Apr									
15 - Apr									
16 - Apr									
17 - Apr									
18 - Apr									
19 - Apr									
20 - Apr									
21 - Apr									
22 - Apr									
23 - Apr									
24 - Apr									
25 - Apr									
26 - Apr									
27 - Apr									
28 - Apr									
29 - Apr									
30 - Apr									

Unit 2 Boiler Continuous Emission Monitoring Summary

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

	NOX			Particulates			SOX		
	ppm (12% CO2)			mg/m3			ppm (12% CO2)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Apr	194	208	184	9	11	8	184	203	169
2 - Apr	188	201	176	9	10	9	192	212	171
3 - Apr	184	200	165	9	11	9	193	203	180
4 - Apr	181	208	170	9	11	9	205	221	185
5 - Apr	157	195	133	9	11	9	205	221	189
6 - Apr	150	197	125	9	10	8	186	221	171
7 - Apr	178	193	169	9	14	8	180	198	165
8 - Apr	186	198	177	9	13	8	177	190	164
9 - Apr	175	193	137	9	11	8	180	207	162
10 - Apr	196	296	144	11	15	9	201	212	173
11 - Apr	167	197	134	10	12	9	192	210	164
12 - Apr	181	255	133	11	15	9	196	218	163
13 - Apr	179	210	133	10	13	8	182	209	152
14 - Apr	156	236	126	10	14	8	174	194	152
15 - Apr	218	330	127	12	15	8	170	188	146
16 - Apr	205	299	123	11	16	8	187	199	170
17 - Apr	200	283	153	11	15	8	198	222	173
18 - Apr	190	255	112	11	15	9	194	237	162
19 - Apr	154	244	125	11	14	9	206	227	184
20 - Apr	177	286	113	11	16	9	180	196	161
21 - Apr	141	164	126	13	16	9	175	191	164
22 - Apr	149	243	120	10	15	9	171	186	152
23 - Apr	135	152	127	9	10	8	168	195	153
24 - Apr	157	230	121	10	15	9	183	201	172
25 - Apr	145	151	130	10	11	8	161	185	150
26 - Apr	130	150	115	10	11	8	184	213	154
27 - Apr	138	148	127	9	10	8	181	196	173
28 - Apr	156	212	130	10	16	8	175	190	162
29 - Apr	187	221	143	12	15	9	177	186	159
30 - Apr	179	222	124	12	15	9	188	208	162

Unit 3 Boiler Continuous Emission Monitoring Summary

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

	NOX			Particulates			SOX		
	ppm (12% CO2)			mg/m3			ppm (12% CO2)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Apr	152	170	142	14	19	11	190	220	163
2 - Apr	155	171	124	12	15	11	198	220	167
3 - Apr	148	169	116	19	32	13	193	212	171
4 - Apr	150	166	133	24	33	18	206	226	183
5 - Apr	146	157	133	15	23	9	211	232	186
6 - Apr	148	162	139	18	28	12	185	205	159
7 - Apr	153	215	131	15	20	12	184	220	159
8 - Apr	145	161	121	14	18	11	178	193	148
9 - Apr	164	192	126	15	18	12	190	219	162
10 - Apr	211	239	162	14	18	12	198	210	176
11 - Apr	167	197	134	10	12	9	192	210	164
12 - Apr	181	255	133	11	15	9	196	218	163
13 - Apr	179	210	133	10	13	8	182	209	152
14 - Apr	214	291	143	13	17	12	177	190	153
15 - Apr	233	324	154	13	18	10	173	201	136
16 - Apr	224	299	173	17	28	12	198	215	163
17 - Apr	210	258	164	14	16	13	205	232	171
18 - Apr	217	294	166	13	16	11	207	322	166
19 - Apr	202	288	168	12	15	11	210	231	174
20 - Apr	203	244	144	24	35	11	171	208	152
21 - Apr	174	236	122	15	22	10	177	193	159
22 - Apr	177	299	132	12	18	10	179	201	154
23 - Apr	186	202	171	11	12	11	172	201	146
24 - Apr	179	313	137	12	12	12	185	198	175
25 - Apr	192	203	181	12	13	12	163	187	142
26 - Apr	177	194	138	13	13	12	186	215	150
27 - Apr	142	177	133	12	13	12	198	222	177
28 - Apr	155	249	131	12	13	12	178	201	157
29 - Apr	186	243	129	14	25	12	176	188	141
30 - Apr	202	271	128	17	21	15	189	220	151

Unit 4 Boiler Continuous Emission Monitoring Summary

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

- 1st, 2nd, 3rd, 4th April Blanks cells indicate Nox and Sox instrument faults.
- 5th April, Min hourly blanks cell caused by reporting error.
- 10th April - All instruments out of service due to calibration.

	NOX			Particulates			SOX		
	ppm (12% CO2)			mg/m3			ppm (12% CO2)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Apr				15	16	14			
2 - Apr				15	16	14			
3 - Apr				17	25	14	169	191	122
4 - Apr				21	30	18	185	207	162
5 - Apr	178	218		18	21	15	192	209	171
6 - Apr	213	227	194	20	26	16	178	218	142
7 - Apr	221	268	142	17	19	13	177	209	152
8 - Apr	193	205	183	16	20	15	167	194	135
9 - Apr	202	211	188	15	16	15	173	194	141
10 - Apr									
11 - Apr	191	213	123	15	15	14	199	218	182
12 - Apr	194	272	140	16	21	14	188	224	145
13 - Apr	193	246	173	16	18	15	177	206	137
14 - Apr	195	253	174	17	18	15	174	201	149
15 - Apr	215	292	135	17	19	16	171	191	133
16 - Apr	204	292	131	18	29	15	184	201	156
17 - Apr	175	243	129	16	22	15	199	220	171
18 - Apr	166	247	117	16	18	14	193	282	152
19 - Apr	148	216	112	16	17	14	189	201	166
20 - Apr	161	217	127	22	30	15	152	207	117
21 - Apr	146	185	130	20	24	18	160	190	145
22 - Apr	160	260	133	18	21	16	157	195	141
23 - Apr	153	170	134	17	20	15	162	192	148
24 - Apr	162	241	136	16	18	16	173	194	151
25 - Apr	176	199	147	17	18	16	146	171	122
26 - Apr	152	177	130	17	29	15	176	216	109
27 - Apr	153	166	138	16	18	15	181	203	162
28 - Apr	174	261	138	17	18	16	169	183	159
29 - Apr	200	246	153	16	18	14	167	179	148
30 - Apr	214	283	125	16	18	16	181	206	162

Dora Creek Ambient Air Monitoring Summary

EPA Identification no. 16 - Ambient air monitoring station at Dora Creek - alongside oval at Dora Creek

- Total Fluoride & NOx does not represent the sum of the gaseous/particulate and NO2/NO due to results being from different tests

	Fluoride Gaseous	Fluoride Particulate	Fluoride Total	Nitrogen Dioxide (NO ₂)	Nitrogen Monoxide (NO)	Nitrogen Oxides (NO _x)	Sulphur Dioxide (SO ₂)
	ug/m3	ug/m3	ug/m3	pphm	pphm	pphm	pphm
Maximum	0.032	0.004	0.034	2.000	1.200	3.200	0.300
Average	0.012	0.002	0.014	0.773	0.270	1.043	0.020
Minimum	0.003	0.002	0.006	0.300	0.000	0.300	0.000
90th Percentile	0.032	0.004	0.034	1.550	0.650	2.000	0.050
Std Deviation	0.012	0.001	0.012	0.448	0.306	0.662	0.065

	Rainfall	Sigma Theta at 10m	Solar Radiation	Temperatu re at 10m	Temperatu re at 2m	Wind Direction at 10m	Wind Speed at 10m
	mm	deg	W/m2	degC	degC	deg	m/s
Maximum	52.07	36.49	206.86	20.72	20.38	289.03	2.09
Average	3.90	28.01	147.77	17.09	16.79	240.24	1.07
Minimum	0.00	22.86	52.69	13.56	13.60	201.63	0.67
90th Percentile	12.32	32.76	176.80	19.56	18.68	277.69	1.31
Std Deviation	10.68	3.57	36.51	1.81	1.58	23.13	0.29

Marks Point Ambient Air Monitoring Summary

EPA Identification no. 15 - Ambient air monitoring station at Marks Point primary school

- Total Fluoride & NOx does not represent the sum of the gaseous/particulate and NO2/NO due to results being from different tests

	Nitrogen Dioxide (NO2)	Nitrogen Monoxide (NO)	Nitrogen Oxides (NOx)	Sulphur Dioxide (SO2)
	pphm	pphm	pphm	pphm
Maximum	1.615	1.565	2.860	0.955
Average	0.595	0.265	0.859	0.168
Minimum	0.160	0.000	0.160	0.000
90th Percentile	1.290	0.815	2.035	0.555
Std Deviation	0.384	0.361	0.717	0.242

	Relative Humidity	Sigma Theta at 2m	Temperature at 2m	Wind Direction at 2m	Wind Speed at 2m
	%	deg	degC	deg	m/s
Maximum	90.80	31.96	21.66	292.18	3.02
Average	79.17	22.91	19.42	209.06	1.50
Minimum	63.96	15.97	15.72	144.32	0.96
90th Percentile	88.14	28.81	21.02	260.19	2.04
Std Deviation	6.88	3.59	1.43	36.75	0.47

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	0.30	0.40	0.70
U2	0.60	0.50	1.10
U3	0.40	0.30	0.70
U4	1.20	1.90	3.10
U5	0.30	0.40	0.70
U6	0.30	0.50	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	0.50	0.10	0.60
E2	0.40	0.20	0.60
E3	0.70	0.60	1.30
E4	1.70	0.40	2.10
E5	0.40	0.40	0.80
E6	0.20	0.50	0.70

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	22.50					
010cm	22.38	7.87	33.90	96.80	6.83	2.90
050cm	22.40	7.86	33.90	96.90	6.83	
100cm	22.40	7.87	33.90	96.50	6.81	
150cm	22.40	7.85	34.14	96.60	6.80	
200cm	22.98	7.81	34.54	89.50	6.22	
250cm	23.42	7.71	34.89	74.50	5.13	
300cm	23.59	7.61	34.98	54.10	3.71	
Bottom	23.62	7.58	34.97	51.30	3.52	

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	20.80					
010cm	22.27	7.84	33.71	95.20	6.73	3.00
050cm	22.27	7.84	33.70	95.00	6.73	
100cm	22.28	7.84	33.71	95.10	6.73	
150cm	22.28	7.84	33.71	95.00	6.72	
200cm	22.28	7.83	33.71	95.10	6.73	
250cm	22.29	7.85	33.73	94.90	6.71	
300cm	22.45	7.85	33.95	94.60	6.66	
350cm	22.67	7.87	34.43	94.70	6.63	
400cm	22.96	7.82	36.50	94.60	6.51	
450cm	23.59	7.74	36.51	68.10	4.63	
500cm	23.57	7.73	36.59	60.00	4.08	
550cm	23.57	7.74	36.61	58.70	3.99	
600cm	23.56	7.74	36.90	59.00	4.00	
650cm	23.46	7.76	37.03	60.00	4.08	
700cm	23.39	7.77	37.26	61.40	4.17	
750cm	23.29	7.72	37.10	59.70	4.07	
Bottom	23.29	7.72	37.37	52.10	3.54	

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	20.60					
010cm	22.15	7.83	35.08	96.50	6.79	4.40
050cm	22.17	7.84	35.08	96.70	6.80	
100cm	22.18	7.85	35.10	96.60	6.79	
150cm	22.19	7.85	35.09	96.50	6.79	
200cm	22.19	7.86	35.09	96.40	6.78	
250cm	22.21	7.86	35.10	96.40	6.77	
300cm	22.21	7.86	35.08	96.30	6.77	
350cm	22.21	7.86	35.09	96.30	6.76	
400cm	22.23	7.86	35.30	96.20	6.75	
450cm	22.48	7.85	36.08	95.00	6.61	
500cm	22.64	7.85	36.19	90.40	6.27	
550cm	22.66	7.85	36.20	88.10	6.10	
600cm	22.44	7.87	36.63	88.50	6.14	
650cm	22.39	7.89	37.78	89.10	6.14	
700cm	22.44	7.88	37.85	88.60	6.10	
750cm	22.57	7.88	37.97	83.60	5.74	
800cm	22.71	7.88	38.28	83.40	5.70	
850cm	22.76	7.88	38.53	80.60	5.50	
900cm	22.66	7.87	38.63	76.30	5.21	
950cm	22.66	7.87	38.57	74.00	5.05	
Bottom	22.66	7.87	38.57	74.00	5.05	

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	24.10					
010cm	24.70	7.84	33.93	118.50	8.03	2.70
050cm	24.69	7.84	33.92	118.90	8.06	
100cm	24.64	7.84	33.92	118.60	8.05	
150cm	24.64	7.84	33.90	118.40	8.03	
200cm	24.53	7.84	33.86	118.40	8.05	
250cm	24.41	7.83	33.86	118.10	8.04	
300cm	24.38	7.80	34.14	117.20	7.97	
350cm	24.30	7.77	34.74	109.00	7.40	
400cm	23.72	7.69	36.27	66.80	4.51	
450cm	23.76	7.64	36.57	57.30	3.89	
500cm	23.79	7.60	36.64	44.70	3.03	
550cm	23.59	7.60	36.93	43.00	2.92	
600cm	23.59	7.48	37.02	40.60	2.75	
Bottom	23.59	7.48	37.02	40.60	2.75	

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	0.050	ug/L	-	02/04/2013
Copper	2.5	ug/L	-	02/04/2013
Iron	4.0	ug/L	-	02/04/2013
Lead	0.10	ug/L	-	02/04/2013
Manganese	17.0	ug/L	-	02/04/2013
Nitrite and Nitrate as N	14.0	ug/L	-	02/04/2013
Phosphorus Reactive as P - Total	157	ug/L	-	02/04/2013
Phosphorus as P - Total	161	ug/L	-	02/04/2013
Suspended Solids (SS)	5.0	mg/L	50.0	02/04/2013
Zinc	2.0	ug/L	-	02/04/2013
pH	8.6		9.5	02/04/2013

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	3.0	ug/L	-	02/04/2013
Iron	5.0	ug/L	-	02/04/2013
Selenium	1.00	ug/L	-	02/04/2013
Temperature - Monthly Ave	22.4	degC	35	April 2013
Temperature - Monthly Max	33.6	degC	35	April 2013
Temperature - Monthly Min	17.7	degC	35	April 2013

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>
Cooling Water Volumetric Flow - Monthly Max	7,333	ML/day	11,000	April 2013
Copper	4.0	ug/L	5.0	02/04/2013
Daily Discharge From Ash Dam - Monthly Max	19.6	ML/day	150	April 2013
Iron	23.0	ug/L	300.0	02/04/2013
Monthly Discharge From Ash Dam	350	ML	-	April 2013
Selenium	1.00	ug/L	2.00	02/04/2013
Temperature - Monthly Ave	27.5	degC	35	April 2013
Temperature - Monthly Max	33.5	degC	35	April 2013
Temperature - Monthly Min	23.3	degC	35	April 2013

- 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>
Iron	10.0	ug/L	-	02/04/2013
Manganese	820	ug/L	-	02/04/2013
Phosphorus as P - Total	114	ug/L	-	02/04/2013
Selenium	1.8	ug/L	-	02/04/2013
pH	6.6		-	02/04/2013