



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

November 2015



Unit 1 Boiler Continuous Emission Monitoring Summary

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

- Sox instrument out of service, 7th -9th & 12th - 16th.

	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 - Nov	141	153	118	12	16	8	171	180	161
2 - Nov	131	156	115	11	15	8	181	194	166
3 - Nov	121	133	104	13	16	11	186	193	172
4 - Nov	136	176	110	13	18	9	186	192	166
5 - Nov	135	168	125	12	17	8	196	215	177
6 - Nov	136	162	120	11	15	8	202	219	196
7 - Nov	141	177	119	12	15	10	0	0	0
8 - Nov	164	187	127	14	17	12	0	0	0
9 - Nov	176	191	158	12	18	9	0	0	0
10 - Nov	172	194	135	12	16	9	185	197	171
11 - Nov	177	209	140	12	16	10	173	186	162
12 - Nov	193	211	182	13	18	10	0	0	0
13 - Nov	166	191	144	12	17	9	0	0	0
14 - Nov	153	178	131	12	16	8	0	0	0
15 - Nov	143	179	123	12	15	9	0	0	0
16 - Nov	179	209	129	13	19	9	0	0	0
17 - Nov	194	223	177	13	18	9	168	188	150
18 - Nov	174	191	149	10	16	6	178	205	164
19 - Nov	154	176	120	10	15	8	168	188	154
20 - Nov	162	187	131	7	12	4	175	186	163
21 - Nov	163	181	139	12	16	9	150	160	143
22 - Nov	152	201	130	12	16	10	150	154	144
23 - Nov	189	229	148	11	16	7	148	153	142
24 - Nov	182	218	147	10	13	8	164	188	143
25 - Nov	162	185	138	9	15	6	180	214	152
26 - Nov	164	194	131	8	12	4	183	210	159
27 - Nov	151	193	128	12	16	10	164	184	156
28 - Nov	144	161	134	12	14	10	151	159	142
29 - Nov	139	171	116	11	15	8	143	152	135
30 - Nov	155	195	116	10	15	7	141	164	132

Unit 2 Boiler Continuous Emission Monitoring Summary

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

- Sox instrument out of service 1st
- Unit out of service - 9th - 14th.
- SOx instrument out of service - 4th - 9th
- Nox instrument out of service 5th - 9th & 27th - 29th.

	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 - Nov	115	136	101	14	16	12	0	0	0
2 - Nov	118	132	100	13	15	12	104	104	104
3 - Nov	111	127	101	15	19	12	65	65	65
4 - Nov	108	112	103	15	18	12	0	0	0
5 - Nov	0	0	0	14	18	12	0	0	0
6 - Nov	0	0	0	13	16	12	0	0	0
7 - Nov	0	0	0	14	17	12	0	0	0
8 - Nov	0	0	0	14	16	14	0	0	0
9 - Nov	0	0	0	0	0	0	0	0	0
10 - Nov	0	0	0	0	0	0	0	0	0
11 - Nov	0	0	0	0	0	0	0	0	0
12 - Nov	0	0	0	0	0	0	0	0	0
13 - Nov	0	0	0	0	0	0	0	0	0
14 - Nov	0	0	0	0	0	0	0	0	0
15 - Nov	122	122	122	12	15	10	123	180	101
16 - Nov	136	156	114	13	15	12	219	275	109
17 - Nov	117	130	101	13	15	11	132	157	104
18 - Nov	106	111	102	12	15	10	144	161	107
19 - Nov	125	171	100	12	16	9	149	195	106
20 - Nov	162	208	111	9	13	6	194	228	155
21 - Nov	125	158	103	13	15	11	140	154	106
22 - Nov	140	209	102	13	16	9	142	155	116
23 - Nov	193	259	105	11	15	8	153	166	124
24 - Nov	175	199	122	10	13	8	171	196	135
25 - Nov	176	219	119	10	15	6	178	212	139
26 - Nov	161	208	107	9	14	6	196	237	158
27 - Nov	0	0	0	13	16	11	166	193	140
28 - Nov	0	0	0	13	15	12	158	174	138
29 - Nov	0	0	0	12	16	9	134	166	100
30 - Nov	148	205	103	12	17	8	148	173	110

Unit 3 Boiler Continuous Emission Monitoring Summary

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

- Unit out of service 22nd - 26th.

Nox and sox out of service 27th - 30th

	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 - Nov	152	197	132	21	26	19	173	182	168
2 - Nov	146	188	129	20	22	17	176	185	165
3 - Nov	143	179	126	21	25	19	184	192	174
4 - Nov	147	181	131	22	25	18	186	191	176
5 - Nov	143	180	129	21	26	18	198	237	157
6 - Nov	127	143	119	19	23	16	198	238	164
7 - Nov	141	150	120	20	22	18	179	195	163
8 - Nov	164	172	148	21	23	20	209	238	179
9 - Nov	173	189	144	21	24	17	208	238	178
10 - Nov	159	185	132	20	24	16	188	201	179
11 - Nov	169	193	133	18	23	14	185	194	175
12 - Nov	166	193	126	19	23	16	194	238	174
13 - Nov	165	183	132	18	23	14	212	230	199
14 - Nov	143	160	121	20	24	16	209	228	186
15 - Nov	156	176	138	21	23	19	192	199	182
16 - Nov	183	226	154	21	26	18	202	226	175
17 - Nov	167	203	154	20	24	17	212	251	187
18 - Nov	166	191	145	18	21	15	216	232	202
19 - Nov	173	206	133	17	22	14	215	236	198
20 - Nov	187	207	146	18	24	14	219	240	199
21 - Nov	183	202	154	21	29	17	224	232	215
22 - Nov	0	0	0	0	0	0	0	0	0
23 - Nov	0	0	0	0	0	0	0	0	0
24 - Nov	0	0	0	0	0	0	0	0	0
25 - Nov	0	0	0	0	0	0	0	0	0
26 - Nov	0	0	0	0	0	0	0	0	0
27 - Nov	0	0	0	19	25	12	0	0	0
28 - Nov	0	0	0	22	26	19	0	0	0
29 - Nov	0	0	0	21	24	18	0	0	0
30 - Nov	0	0	0	20	25	16	0	0	0

Unit 4 Boiler Continuous Emission Monitoring Summary

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

- Nox and Sox instrument out of service 25th - 30th

	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 - Nov	151	227	117	8	11	6	157	167	152
2 - Nov	186	239	160	7	10	5	157	163	151
3 - Nov	163	184	139	7	10	6	166	172	159
4 - Nov	164	187	144	8	10	7	167	170	162
5 - Nov	167	207	144	7	11	6	168	198	158
6 - Nov	160	203	142	6	9	5	191	219	168
7 - Nov	147	177	131	6	8	5	161	168	157
8 - Nov	181	211	158	7	10	6	179	219	162
9 - Nov	185	223	124	8	11	7	170	182	157
10 - Nov	141	166	111	7	11	6	174	183	168
11 - Nov	134	156	112	8	13	6	166	176	154
12 - Nov	135	170	121	8	11	6	177	210	155
13 - Nov	130	150	111	7	11	5	199	210	188
14 - Nov	124	165	105	8	11	6	201	224	170
15 - Nov	183	230	130	7	10	6	164	173	157
16 - Nov	169	205	140	8	10	6	164	173	157
17 - Nov	138	145	127	7	11	5	168	201	157
18 - Nov	140	168	118	7	10	5	185	201	173
19 - Nov	151	170	118	7	10	5	183	201	173
20 - Nov	155	182	129	7	9	4	208	230	171
21 - Nov	147	166	133	6	10	5	164	172	157
22 - Nov	164	197	135	7	10	5	161	167	155
23 - Nov	188	214	157	8	11	6	158	164	151
24 - Nov	166	194	146	8	10	6	177	213	157
25 - Nov	0	0	0	7	11	5	156	178	134
26 - Nov	0	0	0	6	9	4	0	0	0
27 - Nov	0	0	0	7	10	4	0	0	0
28 - Nov	0	0	0	5	8	5	0	0	0
29 - Nov	0	0	0	5	8	5	0	0	0
30 - Nov	0	0	0	6	9	5	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	0.0019	mg/m3	0.20	07/02/2015
Carbon Dioxide (Wet)	8.0	%	-	07/02/2015
Carbon Monoxide	15.0	mg/m3	-	07/02/2015
Chlorine	1.00	mg/m3	300	07/02/2015
Copper	0.0019	mg/m3	-	07/02/2015
Dry Gas Density	1.4	kg/m3	-	07/02/2015
Fluoride As HF - Total	10.0	mg/m3	50	07/02/2015
Hazardous Substances (Metals) - Total	0.027	mg/m3	1.00	07/02/2015
Hydrogen Chloride	2.0	mg/m3	100.0	07/02/2015
Mercury	0.0013	mg/m3	0.200	07/02/2015
Moisture	6.0	%	-	07/02/2015
Particulates - Total	19.0	mg/m3	50	07/02/2015
Stack Gas Molecular Weight	30	kg/k-mole	-	07/02/2015
Temperature	114.3	degC	-	07/02/2015
Velocity	12.0	m/sec	-	07/02/2015
Volatile Organic Compounds (VOC) - Total	0.07	mg/m3	-	07/02/2015
Volumetric Flow Rate (Dry At STP)	301	m3/sec	-	07/02/2015

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	0.00010	mg/m3	0.20	24/08/2014
Carbon Dioxide (Wet)	7.6	%	-	24/08/2014
Carbon Monoxide	128	mg/m3	-	24/08/2014
Chlorine	1.9	mg/m3	300	24/08/2014
Copper	0.0010	mg/m3	-	24/08/2014
Dry Gas Density	1.4	kg/m3	-	24/08/2014
Fluoride As HF - Total	7.5	mg/m3	50	24/08/2014
Hazardous Substances (Metals) - Total	0.015	mg/m3	1.00	24/08/2014
Hydrogen Chloride	1.9	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	14.0	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	0.07	mg/m3	-	24/08/2014
Volumetric Flow Rate (Dry At STP)	239	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	0.0005	mg/m3	0.20	03/05/2015
Carbon Dioxide (Wet)	7.8	%	-	03/05/2015
Carbon Monoxide	30	mg/m3	-	03/05/2015
Chlorine	0.036	mg/m3	200	03/05/2015
Copper	0.0012	mg/m3	-	03/05/2015
Dry Gas Density	1.4	kg/m3	-	03/05/2015
Fluoride As HF - Total	5.4	mg/m3	50	03/05/2015
Hazardous Substances (Metals) - Total	0.0020	mg/m3	1.00	03/05/2015
Hydrogen Chloride	3.9	mg/m3	100.0	03/05/2015
Mercury	0.0003	mg/m3	0.200	03/05/2015
Moisture	6.0	%	-	03/05/2015
Particulates - Total	18.0	mg/m3	50	03/05/2015
Stack Gas Molecular Weight	30	kg/k-mole	-	03/05/2015
Temperature	113.8	degC	-	03/05/2015
Velocity	11.0	m/sec	-	03/05/2015
Volatile Organic Compounds (VOC) - Total	0.65	mg/m3	-	03/05/2015
Volumetric Flow Rate (Dry At STP)	254	m3/sec	-	03/05/2015

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	0.0015	mg/m3	0.20	01/11/2014
Carbon Dioxide (Wet)	12.3	%	-	01/11/2014
Carbon Monoxide	17.0	mg/m3	-	01/11/2014
Chlorine	1.00	mg/m3	200	01/11/2014
Copper	0.0001	mg/m3	-	01/11/2014
Dry Gas Density	1.4	kg/m3	-	01/11/2014
Fluoride As HF - Total	9.0	mg/m3	50	01/11/2014
Hazardous Substances (Metals) - Total	0.0040	mg/m3	1.00	01/11/2014
Hydrogen Chloride	1.3	mg/m3	100.0	01/11/2014
Mercury	0.0003	mg/m3	0.200	01/11/2014
Moisture	2.9	%	-	01/11/2014
Particulates - Total	17.0	mg/m3	50	01/11/2014
Stack Gas Molecular Weight	30	kg/k-mole	-	01/11/2014
Temperature	111.4	degC	-	01/11/2014
Velocity	14.0	m/sec	-	01/11/2014
Volatile Organic Compounds (VOC) - Total	0.24	mg/m3	-	01/11/2014
Volumetric Flow Rate (Dry At STP)	318	m3/sec	-	01/11/2014

Eraring Coal Unloader Dust Gauges

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

- U3 - Contaminated with bird droppings.

	Deposited Matter		
	g/m2/month		
	Ash	Combustible	Insolubles
U1	0.60	0.50	1.10
U2	0.40	0.30	0.70
U3	5.00	4.40	9.40
U4	0.90	0.40	1.30
U5	0.40	0.40	0.80
U6	0.70	0.20	0.90

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	0.20	0.80
E2	0.40	0.10	0.50
E3	0.60	0.30	0.90
E4	0.50	0.40	0.90
E5	3.00	2.60	5.60
E6	1.50	1.40	2.90

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	22.26					
010cm	22.32	8.86	35.10	116.00	7.98	1.75
050cm	22.32	8.89	35.10	114.70	7.89	
100cm	22.26	8.91	35.20	117.80	8.11	
150cm	22.09	8.92	35.10	121.00	8.35	
200cm	21.98	8.93	35.20	123.60	8.56	
Bottom	21.92	8.93	35.30	124.50	8.61	

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	20.13					
010cm	22.59	8.88	35.30	107.60	7.38	2.25
050cm	22.62	8.89	35.30	111.30	7.61	
100cm	22.66	8.92	35.30	116.20	7.95	
150cm	22.63	8.93	35.30	122.50	8.39	
200cm	22.54	8.94	35.30	129.50	8.88	
250cm	22.51	8.94	35.30	133.90	9.17	
300cm	22.38	8.95	35.40	139.80	9.60	
350cm	22.26	8.95	35.40	141.20	9.71	
400cm	22.21	8.95	35.50	143.30	9.87	
450cm	22.20	8.95	35.50	145.10	9.98	
500cm	22.20	8.95	35.60	145.90	10.04	
550cm	22.16	8.94	35.60	134.60	9.29	
600cm	22.06	8.94	35.70	140.80	9.70	
650cm	22.00	8.93	35.80	132.80	9.14	
700cm	21.93	8.91	35.90	129.20	8.88	
Bottom	21.94	8.90	35.90	113.10	7.65	

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	18.71					
010cm	20.85	8.72	35.80	111.60	7.82	2.75
050cm	21.01	8.68	35.60	107.30	7.52	
100cm	21.02	8.73	35.60	104.80	7.37	
150cm	21.02	8.75	35.70	104.70	7.35	
200cm	21.02	8.74	35.60	104.70	7.38	
250cm	21.01	8.77	35.70	101.60	7.09	
300cm	21.03	8.75	35.70	101.20	7.10	
350cm	21.01	8.78	35.80	101.50	7.11	
400cm	21.03	8.78	35.80	100.90	7.07	
450cm	21.02	8.77	35.80	100.80	7.12	
500cm	21.00	8.78	35.80	97.60	6.84	
550cm	20.88	8.78	35.80	95.10	6.67	
600cm	20.83	8.79	35.90	98.20	6.90	
650cm	20.79	8.79	35.90	100.20	7.02	
700cm	20.74	8.81	35.90	99.20	6.96	
750cm	20.73	8.82	35.90	95.40	6.70	
800cm	20.72	8.83	36.00	95.90	6.74	
850cm	20.67	8.84	36.10	96.00	6.76	
900cm	20.33	8.86	36.20	97.70	6.92	
950cm	20.20	8.86	36.20	93.40	6.63	
Bottom	19.90	8.85	36.30	82.40	5.81	

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	20.05					
010cm	23.12	8.77	34.80	108.30	7.36	1.75
050cm	23.41	8.83	34.70	111.30	7.55	
100cm	23.42	8.84	34.70	113.30	7.68	
150cm	23.44	8.85	34.70	116.10	7.86	
200cm	23.84	8.89	35.10	119.20	7.98	
250cm	23.95	8.88	35.20	123.20	8.22	
300cm	24.00	8.88	35.30	126.10	8.40	
350cm	24.01	8.88	35.40	128.00	8.53	
400cm	23.53	8.89	35.30	116.20	7.82	
450cm	22.80	8.89	35.60	103.90	7.10	
500cm	22.57	8.88	35.60	103.50	7.03	
550cm	22.52	8.89	35.70	92.40	6.30	
Bottom	22.52	8.89	35.80	83.40	5.76	

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	-	02/11/2015
Copper	1.00	ug/L	-	02/11/2015
Iron	6.0	ug/L	-	02/11/2015
Lead	0.10	ug/L	-	02/11/2015
Manganese	27	ug/L	-	02/11/2015
Nitrite and Nitrate as N	238	ug/L	-	02/11/2015
Phosphorus Reactive as P - Total	145	ug/L	-	02/11/2015
Phosphorus as P - Total	173	ug/L	-	02/11/2015
Selenium	22.0	ug/L	-	02/11/2015
Suspended Solids (SS)	8.0	mg/L	-	02/11/2015
Zinc	1.00	ug/L	-	02/11/2015
pH	9.4	-	-	02/11/2015

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	2.00	ug/L	-	02/11/2015
Iron	6.0	ug/L	-	02/11/2015
Selenium	2.00	ug/L	-	02/11/2015
Temperature - Average	24.4	deg C	-	Nov 2015
Temperature - Minimum	21.8	deg C	-	Nov 2015
Temperature - Maximum	27.5	deg C	-	Nov 2015

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	3.00	ug/L	5	02/11/2015
Iron	6.0	ug/L	300	02/11/2015
Selenium	2.00	ug/L	2	02/11/2015
Temperature - Average	30.7	deg C	35	Nov 2015
Temperature - Minimum	26.0	deg C	35	Nov 2015
Temperature - Maximum	35.9	deg C	35	Nov 2015
Maximum Daily Discharge from Ash Dam	17.6	ML	150	Nov 2015
Monthly Discharge from Ash Dam	250	ML	-	Nov 2015

- 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 131 hrs 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	66	ug/L	-	02/11/2015
Phosphorus as P - Total	41	ug/L	-	02/11/2015
pH	6.9	-	-	02/11/2015