



Eraring Power Station - EPA Licence 1429

Rocky Point Rd, Morriset NSW 2264

Coal Unloader - EPA Licence 4297

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

Environmental Monitoring Data

December 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 - Dec	210	237	187	8	13	5	173	209	147
2 - Dec	198	215	176	9	16	5	191	209	168
3 - Dec	206	242	184	8	15	5	182	216	160
4 - Dec	195	225	166	9	13	6	182	203	154
5 - Dec	214	247	186	9	15	3	180	207	165
6 - Dec	209	229	180	8	12	4	167	179	153
7 - Dec	198	225	182	6	11	3	149	159	136
8 - Dec	210	233	178	9	14	5	151	159	143
9 - Dec	179	211	152	10	14	5	188	211	147
10 - Dec	168	191	142	9	12	6	196	211	178
11 - Dec	182	234	137	9	14	4	187	209	157
12 - Dec	157	169	138	8	13	6	202	218	181
13 - Dec	141	153	130	9	14	6	168	188	152
14 - Dec	159	184	137	8	14	5	160	179	145
15 - Dec	180	196	162	11	17	6	176	197	161
16 - Dec	165	189	151	9	16	5	190	208	171
17 - Dec	163	175	149	8	12	4	195	211	181
18 - Dec	147	163	131	9	14	6	187	203	154
19 - Dec	150	167	126	9	12	5	176	202	148
20 - Dec	140	151	131	8	13	5	166	193	146
21 - Dec	157	193	137	8	14	5	154	159	143
22 - Dec	166	190	121	9	14	5	160	172	143
23 - Dec	172	191	143	9	13	6	174	197	152
24 - Dec	149	162	136	7	10	4	182	208	162
25 - Dec	135	164	119	7	12	4	163	178	155
26 - Dec	143	164	128	6	10	3	164	174	148
27 - Dec	154	184	129	8	13	5	167	182	152
28 - Dec	147	172	123	8	13	6	165	175	155
29 - Dec	154	174	142	7	12	5	166	169	160
30 - Dec	173	195	147	6	11	4	168	173	164
31 - Dec	171	193	128	8	11	5	165	174	159

Unit 2 Boiler Continuous Emission Monitoring Summary

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

- Unit out of service for maintenance - 23rd.
- Unit returned to service 24th - 30th
- Unit Out of service 31st

	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 - Dec	0	0	0	0	0	0	0	0	0
2 - Dec	0	0	0	0	0	0	0	0	0
3 - Dec	0	0	0	0	0	0	0	0	0
4 - Dec	0	0	0	0	0	0	0	0	0
5 - Dec	0	0	0	0	0	0	0	0	0
6 - Dec	0	0	0	0	0	0	0	0	0
7 - Dec	0	0	0	0	0	0	0	0	0
8 - Dec	0	0	0	0	0	0	0	0	0
9 - Dec	0	0	0	0	0	0	0	0	0
10 - Dec	0	0	0	0	0	0	0	0	0
11 - Dec	0	0	0	0	0	0	0	0	0
12 - Dec	0	0	0	0	0	0	0	0	0
13 - Dec	0	0	0	0	0	0	0	0	0
14 - Dec	0	0	0	0	0	0	0	0	0
15 - Dec	0	0	0	0	0	0	0	0	0
16 - Dec	0	0	0	0	0	0	0	0	0
17 - Dec	0	0	0	0	0	0	0	0	0
18 - Dec	0	0	0	0	0	0	0	0	0
19 - Dec	0	0	0	0	0	0	0	0	0
20 - Dec	0	0	0	0	0	0	0	0	0
21 - Dec	0	0	0	0	0	0	0	0	0
22 - Dec	0	0	0	0	0	0	0	0	0
23 - Dec	0	0	0	0	0	0	0	0	0
24 - Dec	115	115	115	7	7	7	193	201	186
25 - Dec	113	130	102	7	8	6	187	203	129
26 - Dec	131	150	101	9	11	8	180	201	139
27 - Dec	133	176	101	8	12	7	160	174	136
28 - Dec	169	245	120	8	10	7	179	195	152
29 - Dec	169	220	131	9	11	8	179	193	167
30 - Dec	162	192	142	10	12	8	166	174	152
31 - Dec	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% O ₂)			mg/m ³			ppm (7% O ₂)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Dec	211	247	168	5	9	3	173	184	164
2 - Dec	204	232	161	5	10	3	203	245	178
3 - Dec	195	238	162	5	8	3	208	236	190
4 - Dec	199	227	170	5	9	2	202	223	182
5 - Dec	230	286	171	5	10	3	191	213	175
6 - Dec	185	232	165	3	7	2	175	183	133
7 - Dec	192	228	163	3	5	2	159	172	120
8 - Dec	213	266	59	5	9	2	168	176	124
9 - Dec	189	221	127	5	9	2	192	238	170
10 - Dec	211	247	149	5	9	2	191	238	162
11 - Dec	208	242	159	5	9	2	210	226	196
12 - Dec	164	173	154	4	8	2	203	218	194
13 - Dec	167	182	153	3	6	2	176	195	157
14 - Dec	185	217	154	3	5	2	162	180	156
15 - Dec	206	239	161	5	9	2	194	254	173
16 - Dec	174	210	143	4	6	3	215	250	190
17 - Dec	197	218	163	5	9	3	233	261	213
18 - Dec	184	216	153	5	9	3	206	219	186
19 - Dec	182	238	153	5	10	3	205	242	169
20 - Dec	180	193	165	3	7	2	187	242	169
21 - Dec	190	212	167	4	8	3	173	179	166
22 - Dec	223	254	170	5	9	2	187	200	170
23 - Dec	218	253	172	5	10	2	209	227	183
24 - Dec	175	201	151	3	5	2	191	208	182
25 - Dec	197	210	170	4	6	2	182	201	168
26 - Dec	209	222	186	3	5	2	173	182	168
27 - Dec	195	215	156	5	8	2	188	196	172
28 - Dec	167	186	145	3	5	3	182	187	174
29 - Dec	166	190	134	4	5	4	180	184	176
30 - Dec	191	239	170	3	5	2	179	185	163
31 - Dec	208	275	164	5	6	4	170	182	136

Unit 4 Boiler Continuous Emission Monitoring Summary

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

- Unit instrumentation struck by lightning 8th - 14th.

	NOX			Particulates			SOX		
	ppm (7% O ₂)			mg/m ³			ppm (7% O ₂)		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Dec	195	222	111	6	10	4	145	160	127
2 - Dec	171	198	135	5	9	3	186	198	171
3 - Dec	172	204	144	4	8	3	180	205	153
4 - Dec	170	190	148	5	8	4	176	191	150
5 - Dec	193	237	159	4	9	3	171	195	153
6 - Dec	151	171	139	4	9	3	154	165	144
7 - Dec	148	166	136	4	7	3	136	143	131
8 - Dec	0	0	0	4	8	3	0	0	0
9 - Dec	0	0	0	5	9	3	0	0	0
10 - Dec	0	0	0	5	9	4	0	0	0
11 - Dec	0	0	0	5	8	4	0	0	0
12 - Dec	0	0	0	5	8	4	0	0	0
13 - Dec	0	0	0	4	7	3	0	0	0
14 - Dec	0	0	0	5	8	3	0	0	0
15 - Dec	174	194	147	5	8	4	174	195	150
16 - Dec	150	165	135	5	8	4	176	195	161
17 - Dec	156	170	137	5	9	4	183	210	154
18 - Dec	162	195	128	5	9	4	162	184	144
19 - Dec	158	189	130	5	9	4	163	186	144
20 - Dec	143	153	132	5	8	4	151	181	133
21 - Dec	165	199	142	5	9	4	138	154	116
22 - Dec	172	202	140	5	11	4	152	168	134
23 - Dec	158	179	131	5	10	4	160	177	147
24 - Dec	141	161	129	5	8	4	172	192	135
25 - Dec	190	208	127	5	9	3	139	146	133
26 - Dec	209	215	192	5	9	3	135	141	129
27 - Dec	186	228	122	6	9	4	142	153	129
28 - Dec	118	132	103	5	8	4	135	140	116
29 - Dec	124	160	101	4	9	3	140	153	132
30 - Dec	146	192	103	4	8	3	147	161	138
31 - Dec	193	254	131	5	9	4	155	168	138

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	0.60	0.30	0.90
U2	2.00	0.60	2.60
U3	0.70	0.60	1.30
U4	1.00	0.50	1.50
U5	0.70	0.50	1.20
U6	1.50	1.40	2.90

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	0.90	0.60	1.50
E2	0.80	0.60	1.40
E3	0.70	0.40	1.10
E4	0.40	0.20	0.60
E5	0.90	0.50	1.40
E6	0.90	0.70	1.60

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	30.71					
010cm	28.00	8.13	33.70	126.40	8.01	1.75
050cm	28.03	8.14	33.70	128.10	8.14	
100cm	27.60	8.14	33.90	131.50	8.36	
150cm	27.63	8.14	34.00	135.90	8.70	
200cm	27.15	8.15	34.00	139.20	8.92	
250cm	27.06	8.15	34.30	142.10	9.10	
Bottom	27.07	8.15	34.60	105.30	6.76	

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	28.15					
010cm	26.61	8.16	34.10	129.80	8.39	1.75
050cm	26.38	8.16	34.20	128.87	8.32	
100cm	26.39	8.16	34.30	131.10	8.50	
150cm	26.15	8.16	34.40	134.50	8.75	
200cm	25.99	8.16	34.50	137.60	8.96	
250cm	25.91	8.16	34.60	138.60	9.03	
300cm	25.84	8.16	34.70	142.70	9.29	
350cm	25.87	8.15	34.80	145.80	9.48	
400cm	25.87	8.15	34.90	149.20	9.70	
450cm	25.84	8.15	34.90	153.20	9.96	
500cm	25.83	8.15	35.00	157.50	10.25	
550cm	25.75	8.15	35.10	161.50	10.51	
600cm	25.69	8.15	35.10	165.20	10.76	
650cm	25.66	8.15	35.20	167.60	10.19	
700cm	25.68	8.16	35.20	171.50	11.17	
750cm	25.59	8.14	35.30	97.00	6.20	
Bottom	25.61	8.13	35.30	85.00	5.43	

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	23.36					
010cm	24.00	8.05	35.20	100.00	6.69	1.25
050cm	24.15	8.09	35.30	98.40	6.57	
100cm	24.15	8.10	35.30	96.10	6.44	
150cm	24.15	8.10	35.40	96.80	6.48	
200cm	24.15	8.10	35.40	97.80	6.54	
250cm	24.16	8.10	35.50	95.40	6.21	
300cm	24.15	8.10	35.50	93.80	6.26	
350cm	24.17	8.10	35.60	100.00	6.64	
400cm	24.16	8.10	35.70	92.80	6.18	
450cm	24.16	8.10	35.70	95.90	6.35	
500cm	24.16	8.10	35.70	93.00	6.18	
550cm	24.16	8.10	35.80	95.00	6.23	
600cm	24.16	8.10	35.80	92.70	6.16	
650cm	24.16	8.10	35.80	89.00	5.93	
700cm	24.16	8.10	35.90	92.60	6.19	
750cm	24.16	8.10	35.90	92.80	6.17	
800cm	23.93	8.09	35.90	90.20	6.10	
850cm	23.18	8.06	35.90	84.40	5.90	
900cm	22.97	8.05	36.00	81.40	5.48	
950cm	22.90	8.05	36.00	78.00	5.15	
Bottom	22.87	8.05	36.00	76.50	5.20	

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	25.50					
010cm	28.04	8.10	34.60	124.40	7.81	2.25
050cm	28.10	8.11	34.60	123.00	7.71	
100cm	27.87	8.11	34.60	112.80	7.24	
150cm	27.67	8.12	34.60	119.40	7.55	
200cm	27.50	8.12	34.70	116.90	7.37	
250cm	27.47	8.12	34.80	106.60	7.08	
300cm	27.27	8.12	34.90	106.80	6.91	
350cm	27.13	8.11	35.00	102.30	6.57	
400cm	26.26	8.11	35.00	105.00	6.80	
450cm	26.05	8.12	35.00	99.70	6.49	
500cm	25.50	8.10	35.00	87.10	5.61	
550cm	25.38	8.09	35.10	90.00	5.89	
600cm	25.38	8.07	35.20	81.50	5.30	
Bottom	25.38	8.07	35.20	71.10	4.63	

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	-	04/12/2014
Copper	1.8	ug/L	-	04/12/2014
Iron	9.0	ug/L	-	04/12/2014
Lead	0.20	ug/L	-	04/12/2014
Manganese	10.1	ug/L	-	04/12/2014
Nitrite and Nitrate as N	277	ug/L	-	04/12/2014
Phosphorus Reactive as P - Total	73	ug/L	-	04/12/2014
Phosphorus as P - Total	132	ug/L	-	04/12/2014
Selenium	29	ug/L	-	04/12/2014
Suspended Solids (SS)	5.0	mg/L	-	04/12/2014
Zinc	5.0	ug/L	-	04/12/2014
pH	8.9		-	04/12/2014

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	1.00	ug/L	-	04/12/2014
Iron	16.0	ug/L	-	04/12/2014
Selenium	4.00	ug/L	-	04/12/2014
Temperature - Average	25.9	deg C	-	Dec 2014
Temperature - Minimum	23.5	deg C	-	Dec 2014
Temperature - Maximum	27.8	deg C	-	Dec 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>
Copper	1.00	ug/L	5	18/12/2014
Iron	21.0	ug/L	300	18/12/2014
Selenium	2.00	ug/L	2	18/12/2014
Temperature - Average	31.9	deg C	35	Dec 2014
Temperature - Minimum	26.5	deg C	35	Dec 2014
Temperature - Maximum	35.9	deg C	35	Dec 2014
Maximum Daily Discharge from Ash Dam	15.7	ML	150000	Dec 2014
Monthly Discharge from Ash Dam	118	ML	-	Dec 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.
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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	147	ug/L	-	04/12/2014
Phosphorus as P - Total	66	ug/L	-	04/12/2014
pH	7.2		-	04/12/2014