



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 2016



Unit 1 Boiler Continuous Emission Monitoring Summary

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

- Unit out of service 27th - 31st due to 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	172	196	134	12	20	9	217	251	186
2 - Aug	176	206	117	14	21	10	214	243	196
3 - Aug	158	176	128	12	19	9	210	226	181
4 - Aug	174	193	140	13	19	9	188	206	179
5 - Aug	180	214	138	14	19	11	188	211	164
6 - Aug	179	217	147	13	20	8	184	196	158
7 - Aug	171	206	131	15	21	11	185	189	176
8 - Aug	158	200	134	15	24	10	185	213	171
9 - Aug	161	189	125	15	26	11	203	246	179
10 - Aug	176	209	136	11	16	9	196	205	174
11 - Aug	156	173	112	12	18	10	192	217	180
12 - Aug	166	216	107	14	21	10	192	222	168
13 - Aug	175	212	139	13	19	11	174	183	160
14 - Aug	165	210	135	14	20	10	175	184	152
15 - Aug	178	204	138	16	25	11	173	212	152
16 - Aug	177	214	105	15	25	11	178	210	167
17 - Aug	173	217	118	13	21	9	187	208	170
18 - Aug	202	239	158	12	17	11	194	218	177
19 - Aug	188	229	136	12	22	7	198	233	172
20 - Aug	179	239	127	11	15	9	195	230	172
21 - Aug	175	223	149	13	18	10	184	200	151
22 - Aug	161	176	146	13	20	8	182	199	158
23 - Aug	162	177	139	11	17	7	191	216	157
24 - Aug	147	163	127	17	25	11	222	238	182
25 - Aug	126	136	113	15	22	10	207	237	180
26 - Aug	140	172	118	17	26	13	190	213	173
27 - Aug	0	0	0	0	0	0	0	0	0
28 - Aug	0	0	0	0	0	0	0	0	0
29 - Aug	0	0	0	0	0	0	0	0	0
30 - Aug	0	0	0	0	0	0	0	0	0
31 - Aug	0	0	0	0	0	0	0	0	0

Unit 2 Boiler Continuous Emission Monitoring Summary

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

- - Unit out of service 6th - 18th.

	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	165	174	149	20	24	17	206	260	183
2 - Aug	152	179	134	20	23	17	210	242	190
3 - Aug	146	170	127	19	22	18	213	242	185
4 - Aug	157	164	148	19	21	18	187	225	171
5 - Aug	152	177	142	19	23	18	183	201	165
6 - Aug	0	0	0	0	0	0	0	0	0
7 - Aug	0	0	0	0	0	0	0	0	0
8 - Aug	0	0	0	0	0	0	0	0	0
9 - Aug	0	0	0	0	0	0	0	0	0
10 - Aug	0	0	0	0	0	0	0	0	0
11 - Aug	0	0	0	0	0	0	0	0	0
12 - Aug	0	0	0	0	0	0	0	0	0
13 - Aug	0	0	0	0	0	0	0	0	0
14 - Aug	0	0	0	0	0	0	0	0	0
15 - Aug	0	0	0	0	0	0	0	0	0
16 - Aug	0	0	0	0	0	0	0	0	0
17 - Aug	0	0	0	0	0	0	0	0	0
18 - Aug	0	0	0	0	0	0	0	0	0
19 - Aug	194	229	154	19	28	14	198	217	167
20 - Aug	188	205	172	18	20	16	186	219	166
21 - Aug	172	259	123	19	23	16	185	210	170
22 - Aug	200	229	151	19	25	15	186	209	162
23 - Aug	202	221	170	17	20	14	185	207	161
24 - Aug	159	201	118	20	23	18	208	228	187
25 - Aug	158	174	120	19	22	16	204	221	172
26 - Aug	162	183	118	19	22	17	210	241	195
27 - Aug	160	203	120	19	23	16	202	246	175
28 - Aug	176	234	118	21	25	17	172	177	160
29 - Aug	190	221	111	22	27	18	180	187	163
30 - Aug	173	201	119	21	26	17	211	246	173
31 - Aug	170	194	105	20	24	18	203	226	175

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	164	208	115	19	23	18	189	208	167
2 - Aug	168	195	112	19	24	11	182	202	159
3 - Aug	172	200	139	19	22	11	188	204	166
4 - Aug	156	207	118	19	22	11	172	183	163
5 - Aug	147	159	110	20	23	18	169	179	160
6 - Aug	155	182	126	20	24	19	166	178	154
7 - Aug	156	171	128	21	25	19	162	172	155
8 - Aug	181	214	144	19	23	7	158	192	145
9 - Aug	178	210	116	20	24	14	187	220	159
10 - Aug	179	213	155	20	27	12	175	187	160
11 - Aug	176	201	146	20	23	12	176	204	153
12 - Aug	183	211	148	21	25	12	158	183	129
13 - Aug	190	219	127	20	24	7	153	160	131
14 - Aug	181	237	149	20	23	18	153	163	124
15 - Aug	198	227	150	19	24	7	152	174	139
16 - Aug	199	232	167	20	24	7	179	215	155
17 - Aug	186	231	118	19	24	12	176	197	153
18 - Aug	202	242	134	20	23	12	163	175	152
19 - Aug	213	266	145	21	26	12	173	187	161
20 - Aug	178	229	151	21	24	8	174	195	136
21 - Aug	133	180	106	21	25	8	171	185	149
22 - Aug	155	182	105	21	24	9	173	191	157
23 - Aug	166	190	146	20	23	8	164	186	149
24 - Aug	130	163	107	22	25	14	185	198	170
25 - Aug	148	172	106	21	24	9	177	197	143
26 - Aug	165	194	116	22	25	9	179	211	167
27 - Aug	161	203	129	22	25	10	185	202	168
28 - Aug	152	201	121	22	25	14	157	176	151
29 - Aug	168	189	121	22	25	14	159	165	150
30 - Aug	158	185	122	21	27	8	194	213	168
31 - Aug	166	190	107	19	21	8	188	217	164

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	146	159	118	17	20	16	132	171	113
2 - Aug	143	155	112	18	20	15	153	178	139
3 - Aug	141	167	126	17	20	15	152	176	130
4 - Aug	156	183	137	17	19	16	142	172	123
5 - Aug	160	185	142	17	20	15	139	168	120
6 - Aug	153	171	129	17	20	15	137	155	125
7 - Aug	156	175	143	18	21	16	132	138	123
8 - Aug	155	169	135	18	21	16	141	175	123
9 - Aug	158	173	125	18	21	17	144	164	129
10 - Aug	152	170	113	18	21	15	138	148	129
11 - Aug	155	175	117	18	22	16	145	160	132
12 - Aug	176	209	147	19	23	16	140	171	111
13 - Aug	173	191	146	19	22	17	133	138	125
14 - Aug	178	198	147	20	24	17	127	133	115
15 - Aug	164	180	118	19	22	17	126	140	122
16 - Aug	156	180	110	19	24	15	137	155	125
17 - Aug	153	175	114	17	20	14	137	146	125
18 - Aug	170	193	131	18	22	16	130	146	121
19 - Aug	130	153	104	17	23	13	132	158	113
20 - Aug	149	184	115	18	21	16	136	168	113
21 - Aug	160	223	118	19	24	16	130	136	126
22 - Aug	176	199	137	20	24	18	132	145	126
23 - Aug	178	194	140	19	21	17	136	165	123
24 - Aug	140	177	115	19	23	16	140	158	121
25 - Aug	149	174	118	20	22	17	143	164	123
26 - Aug	131	142	114	24	29	21	152	166	142
27 - Aug	153	176	124	29	33	26	155	175	139
28 - Aug	173	203	132	25	37	18	127	139	122
29 - Aug	176	191	133	22	25	19	128	138	120
30 - Aug	159	181	132	17	26	14	147	176	121
31 - Aug	134	144	106	16	20	14	143	168	130

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	0.06	mg/m3	0.20	30/01/2016
Carbon Dioxide (Wet)	12.0	%	-	30/01/2016
Carbon Monoxide	1.00	mg/m3	-	30/01/2016
Chlorine	0.06	mg/m3	300	30/01/2016
Copper	0.0007	mg/m3	-	30/01/2016
Dry Gas Density	1.4	kg/m3	-	30/01/2016
Fluoride As HF - Total	9.2	mg/m3	50	30/01/2016
Hazardous Substances (Metals) - Total	0.07	mg/m3	1.00	30/01/2016
Hydrogen Chloride	0.80	mg/m3	100.0	30/01/2016
Mercury	0.0003	mg/m3	0.200	30/01/2016
Moisture	7.1	%	-	30/01/2016
Particulates - Total	17.0	mg/m3	50	30/01/2016
Stack Gas Molecular Weight	30	kg/k-mole	-	30/01/2016
Temperature	112.5	degC	-	30/01/2016
Velocity	13.5	m/sec	-	30/01/2016
Volatile Organic Compounds (VOC) - Total	1.8	mg/m3	-	30/01/2016
Volumetric Flow Rate (Dry At STP)	305	m3/sec	-	30/01/2016

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	0.05	mg/m3	0.20	22/08/2015
Carbon Dioxide (Wet)	11.8	%	-	22/08/2015
Carbon Monoxide	1.00	mg/m3	-	22/08/2015
Chlorine	0.76	mg/m3	200	22/08/2015
Copper	0.010	mg/m3	-	22/08/2015
Dry Gas Density	1.4	kg/m3	-	22/08/2015
Fluoride As HF - Total	11.8	mg/m3	50	22/08/2015
Hazardous Substances (Metals) - Total	0.07	mg/m3	1.00	22/08/2015
Hydrogen Chloride	0.53	mg/m3	100.0	22/08/2015
Mercury	0.0003	mg/m3	0.200	22/08/2015
Moisture	3.2	%	-	22/08/2015
Particulates - Total	2.1	mg/m3	50	22/08/2015
Stack Gas Molecular Weight	30	kg/k-mole	-	22/08/2015
Temperature	117.0	degC	-	22/08/2015
Velocity	10.3	m/sec	-	22/08/2015
Volatile Organic Compounds (VOC) - Total	0.76	mg/m3	-	22/08/2015
Volumetric Flow Rate (Dry At STP)	236	m3/sec	-	22/08/2015

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	0.0006	mg/m3	0.20	31/10/2015
Carbon Dioxide (Wet)	10.2	%	-	31/10/2015
Carbon Monoxide	0.11	mg/m3	-	31/10/2015
Chlorine	0.86	mg/m3	200	31/10/2015
Copper	0.0004	mg/m3	-	31/10/2015
Dry Gas Density	1.3	kg/m3	-	31/10/2015
Fluoride As HF - Total	3.3	mg/m3	50	31/10/2015
Hazardous Substances (Metals) - Total	0.07	mg/m3	1.00	31/10/2015
Hydrogen Chloride	0.30	mg/m3	100.0	31/10/2015
Mercury	0.0011	mg/m3	0.200	31/10/2015
Moisture	5.4	%	-	31/10/2015
Particulates - Total	0.22	mg/m3	50	31/10/2015
Stack Gas Molecular Weight	30	kg/k-mole	-	31/10/2015
Temperature	112.5	degC	-	31/10/2015
Velocity	11.5	m/sec	-	31/10/2015
Volatile Organic Compounds (VOC) - Total	0.86	mg/m3	-	31/10/2015
Volumetric Flow Rate (Dry At STP)	258	m3/sec	-	31/10/2015

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	0.20	0.80
U2	0.50	0.20	0.70
U3	3.20	2.60	5.80
U4	0.30	0.50	0.80
U5	0.30	0.30	0.60
U6	0.30	0.10	0.40

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	0.40	0.30	0.70
E2	0.50	0.50	1.00
E3	0.30	0.40	0.70
E4	0.30	0.10	0.40
E5	0.20	0.10	0.30
E6	1.10	0.90	2.00

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	17.48					
010cm	15.51	8.52	34.80	109.80	8.57	2.90
050cm	15.49	8.51	34.80	111.20	8.68	
100cm	15.42	8.51	34.90	113.90	8.90	
150cm	15.33	8.51	34.90	118.00	9.22	
200cm	15.32	8.52	35.00	122.10	9.55	
250cm	15.27	8.53	35.00	126.70	9.91	
Bottom	15.28	8.52	33.40	92.70	6.97	

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	15.18					
010cm	15.89	8.47	34.60	94.90	7.22	4.25
050cm	15.98	8.48	34.70	88.40	6.84	
100cm	16.00	8.48	34.70	92.70	7.20	
150cm	15.91	8.50	34.70	91.00	7.05	
200cm	15.88	8.50	34.70	91.90	7.11	
250cm	15.82	8.51	34.70	91.90	7.15	
300cm	15.71	8.51	34.80	91.50	7.14	
350cm	15.61	8.51	34.80	90.40	7.06	
400cm	15.22	8.53	35.00	88.60	6.95	
450cm	15.15	8.53	35.10	89.00	7.07	
500cm	15.11	8.53	35.10	89.70	7.03	
550cm	15.10	8.53	35.20	88.80	6.97	
600cm	15.07	8.54	35.30	88.20	6.87	
650cm	15.06	8.53	35.30	84.60	6.64	
700cm	15.05	8.53	35.40	82.80	6.49	
Bottom	15.06	8.53	35.40	77.60	6.10	

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	12.77					
010cm	14.92	8.42	35.70	98.00	7.67	6.75
050cm	15.09	8.46	35.60	101.50	7.94	
100cm	15.18	8.47	35.60	109.20	8.52	
150cm	15.23	8.50	35.60	113.80	8.95	
200cm	15.26	8.50	35.70	119.40	9.32	
250cm	15.35	8.52	35.70	123.40	9.61	
300cm	15.46	8.53	35.70	126.60	9.82	
350cm	15.37	8.53	35.80	130.70	10.12	
400cm	15.41	8.54	35.80	133.30	10.35	
450cm	15.41	8.54	35.80	134.90	10.46	
500cm	15.49	8.55	35.80	137.50	10.67	
550cm	15.58	8.55	35.80	139.50	10.85	
600cm	15.66	8.55	35.90	138.10	10.65	
650cm	15.79	8.56	35.90	123.80	9.44	
700cm	15.80	8.56	36.00	93.30	7.19	
750cm	15.81	8.56	36.00	97.00	7.46	
800cm	15.82	8.56	36.00	93.00	7.13	
850cm	15.86	8.55	36.00	94.00	7.25	
900cm	15.91	8.55	36.10	91.40	7.01	
Bottom	15.95	8.55	36.20	73.10	5.55	

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	14.57					
010cm	18.13	8.43	35.70	91.80	6.89	3.75
050cm	18.47	8.44	35.30	105.50	7.74	
100cm	18.57	8.45	35.20	106.50	7.85	
150cm	18.49	8.46	35.20	107.80	7.96	
200cm	18.36	8.47	35.10	108.60	8.03	
250cm	17.76	8.48	35.20	108.90	8.21	
300cm	17.01	8.49	35.20	98.70	7.60	
350cm	15.75	8.53	35.30	92.60	7.16	
400cm	15.58	8.54	35.30	87.90	6.85	
450cm	15.52	8.53	35.40	87.30	6.79	
500cm	15.50	8.53	35.40	86.70	6.73	
550cm	15.52	8.53	35.40	79.80	6.21	
Bottom	15.55	8.49	35.50	68.90	5.34	

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	-	04/08/2016
Copper	1.00	ug/L	-	04/08/2016
Iron	5.0	ug/L	-	04/08/2016
Lead	0.20	ug/L	-	04/08/2016
Manganese	5.6	ug/L	-	04/08/2016
Nitrite and Nitrate as N	1,160	ug/L	-	04/08/2016
Phosphorus Reactive as P - Total	107	ug/L	-	04/08/2016
Phosphorus as P - Total	232	ug/L	-	04/08/2016
Selenium	56	ug/L	-	04/08/2016
Suspended Solids (SS)	18,000	ug/L	-	04/08/2016
Zinc	5.0	ug/L	-	04/08/2016
pH	9.9	-	-	04/08/2016

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	-	04/08/2016
Iron	5.0	ug/L	-	04/08/2016
Selenium	1.00	ug/L	-	04/08/2016
Temperature - Average	15.9	deg C	-	Aug 2016
Temperature - Minimum	14.3	deg C	-	Aug 2016
Temperature - Maximum	18.0	deg C	-	Aug 2016

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	2.00	ug/L	5	04/08/2016
Iron	24.0	ug/L	300	04/08/2016
Selenium	1.00	ug/L	2	04/08/2016
Temperature - Average	24.4	deg C	35	Aug 2016
Temperature - Minimum	18.2	deg C	35	Aug 2016
Temperature - Maximum	27.9	deg C	35	Aug 2016
Maximum Daily Discharge from Ash Dam	30.2	ML	150	Aug 2016
Monthly Discharge from Ash Dam	283	ML	-	Aug 2016

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	231	ug/L	-	04/08/2016
Phosphorus as P - Total	107	ug/L	-	04/08/2016
pH	7.0	-	-	04/08/2016