



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

May 2016



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 - May	145	168	111	10	17	8	153	169	131
2 - May	149	172	109	9	19	6	153	170	138
3 - May	150	161	131	8	12	6	160	184	129
4 - May	140	151	114	8	13	7	180	199	172
5 - May	136	147	112	10	18	7	174	192	149
6 - May	141	159	106	9	15	7	166	183	140
7 - May	154	179	122	11	22	8	147	159	119
8 - May	161	181	134	12	23	7	148	181	119
9 - May	147	162	109	10	17	7	172	200	154
10 - May	148	161	115	8	12	7	157	172	138
11 - May	148	175	102	10	16	8	159	177	123
12 - May	142	163	100	11	16	9	176	198	127
13 - May	143	155	106	10	16	7	188	227	144
14 - May	136	166	107	11	18	7	186	224	130
15 - May	130	152	103	11	21	8	196	214	155
16 - May	133	143	103	10	14	8	196	214	175
17 - May	133	147	103	10	15	7	183	199	148
18 - May	139	155	109	13	19	8	197	214	161
19 - May	155	182	129	12	16	9	192	212	168
20 - May	137	161	111	11	20	8	200	234	122
21 - May	133	149	111	15	26	9	200	213	174
22 - May	123	132	107	11	20	7	205	220	168
23 - May	128	136	112	10	15	6	203	221	159
24 - May	125	130	111	12	17	9	201	215	154
25 - May	131	146	102	13	19	9	207	228	175
26 - May	133	147	120	12	16	10	200	221	175
27 - May	128	142	104	12	17	10	201	227	174
28 - May	137	153	118	11	16	9	174	191	159
29 - May	139	155	117	11	15	10	155	164	131
30 - May	135	146	122	12	18	9	164	188	137
31 - May	128	148	110	13	24	10	183	216	145

Unit 2 Boiler Continuous Emission Monitoring Summary

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

- 13th - 18th Power Failure on CEM instruments.

	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 - May	133	160	127	20	23	16	172	183	160
2 - May	163	208	131	17	23	14	164	172	151
3 - May	171	193	139	15	19	13	175	209	150
4 - May	157	167	139	15	19	13	188	208	174
5 - May	153	163	134	18	22	14	190	223	170
6 - May	162	191	139	16	22	13	176	199	156
7 - May	179	201	154	18	22	14	155	161	144
8 - May	169	197	136	18	24	14	162	204	146
9 - May	158	173	122	17	22	15	174	203	158
10 - May	145	165	127	15	18	14	169	186	159
11 - May	152	175	128	16	20	14	161	209	129
12 - May	134	153	112	17	19	15	120	141	110
13 - May	0	0	0	16	19	14	0	0	0
14 - May	0	0	0	18	23	14	0	0	0
15 - May	0	0	0	18	24	15	0	0	0
16 - May	0	0	0	17	20	14	0	0	0
17 - May	0	0	0	17	21	14	0	0	0
18 - May	0	0	0	18	22	15	0	0	0
19 - May	177	191	162	17	21	14	197	222	173
20 - May	171	191	147	17	20	14	210	230	178
21 - May	137	157	119	19	24	17	208	220	192
22 - May	143	162	115	18	24	14	214	227	200
23 - May	154	180	120	16	21	13	208	222	193
24 - May	149	162	121	17	20	15	212	222	200
25 - May	141	169	116	19	22	16	225	240	207
26 - May	121	136	111	19	22	17	216	238	204
27 - May	118	128	111	19	22	17	228	252	187
28 - May	126	131	119	19	21	17	187	197	161
29 - May	126	133	123	19	22	18	179	191	164
30 - May	134	153	125	21	25	17	180	204	165
31 - May	146	154	138	22	27	19	196	214	183

Unit 3 Boiler Continuous Emission Monitoring Summary

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

- Unit out of service.

	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 - May	0	0	0	0	0	0	0	0	0
2 - May	0	0	0	0	0	0	0	0	0
3 - May	0	0	0	0	0	0	0	0	0
4 - May	0	0	0	0	0	0	0	0	0
5 - May	0	0	0	0	0	0	0	0	0
6 - May	0	0	0	0	0	0	0	0	0
7 - May	0	0	0	0	0	0	0	0	0
8 - May	0	0	0	0	0	0	0	0	0
9 - May	0	0	0	0	0	0	0	0	0
10 - May	0	0	0	0	0	0	0	0	0
11 - May	0	0	0	0	0	0	0	0	0
12 - May	0	0	0	0	0	0	0	0	0
13 - May	0	0	0	0	0	0	0	0	0
14 - May	0	0	0	0	0	0	0	0	0
15 - May	0	0	0	0	0	0	0	0	0
16 - May	0	0	0	0	0	0	0	0	0
17 - May	0	0	0	0	0	0	0	0	0
18 - May	0	0	0	0	0	0	0	0	0
19 - May	0	0	0	0	0	0	0	0	0
20 - May	0	0	0	0	0	0	0	0	0
21 - May	0	0	0	0	0	0	0	0	0
22 - May	0	0	0	0	0	0	0	0	0
23 - May	0	0	0	0	0	0	0	0	0
24 - May	0	0	0	0	0	0	0	0	0
25 - May	0	0	0	0	0	0	0	0	0
26 - May	0	0	0	0	0	0	0	0	0
27 - May	0	0	0	0	0	0	0	0	0
28 - May	0	0	0	0	0	0	0	0	0
29 - May	0	0	0	0	0	0	0	0	0
30 - May	0	0	0	0	0	0	0	0	0
31 - May	0	0	0	0	0	0	0	0	0

Unit 4 Boiler Continuous Emission Monitoring Summary

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

- 8th - Nox O/S due to a power failure.

9th - Sox O/S due to a power failure.

	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 - May	172	206	118	13	17	10	155	176	147
2 - May	175	196	144	13	18	12	156	175	146
3 - May	169	188	124	15	18	13	156	167	145
4 - May	160	175	127	15	20	13	178	195	163
5 - May	163	177	128	16	21	14	176	192	161
6 - May	185	207	142	16	21	13	166	175	148
7 - May	165	203	130	7	20	3	141	147	132
8 - May	0	0	0	13	22	8	135	148	0
9 - May	192	201	134	15	21	10	0	0	0
10 - May	183	209	146	15	20	12	154	167	147
11 - May	174	188	139	16	20	14	172	184	159
12 - May	164	179	144	12	21	9	180	193	164
13 - May	167	192	123	12	18	9	188	218	157
14 - May	137	155	119	13	18	10	188	218	154
15 - May	141	150	127	13	17	10	201	212	190
16 - May	142	152	133	11	19	7	192	203	181
17 - May	143	156	127	8	12	5	187	195	178
18 - May	147	157	131	9	15	7	188	201	174
19 - May	152	174	131	7	10	5	185	204	155
20 - May	167	186	145	8	11	5	191	223	160
21 - May	148	160	122	7	11	6	198	209	180
22 - May	150	160	139	7	11	6	207	217	197
23 - May	180	206	142	7	11	5	195	206	185
24 - May	176	186	151	8	12	6	204	210	193
25 - May	175	189	144	8	14	6	213	229	198
26 - May	165	178	127	9	13	6	203	211	191
27 - May	171	186	133	8	12	5	215	234	180
28 - May	160	191	143	8	12	5	167	179	158
29 - May	183	200	168	9	13	6	164	171	155
30 - May	212	246	178	11	17	9	167	191	155
31 - May	170	195	151	15	22	11	186	209	169

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	18.0	mg/m3	50	03/05/2015
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	17.0	mg/m3	50	01/11/2014
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	0.20	0.10	0.30
U2	0.60	0.20	0.80
U3	0.40	0.10	0.50
U4	0.20	0.30	0.50
U5	0.20	0.20	0.40
U6	0.60	0.20	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	0.40	0.20	0.60
E2	0.70	0.40	1.10
E3	0.30	0.10	0.40
E4	0.20	0.20	0.40
E5	0.30	0.10	0.40
E6	0.20	0.10	0.30

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	20.87					
010cm	21.58	8.52	35.30	106.90	7.45	2.25
050cm	21.44	8.66	35.40	80.60	5.74	
100cm	21.40	8.69	35.50	81.50	5.78	
150cm	21.24	8.72	35.70	77.50	5.26	
200cm	21.03	8.72	35.70	77.00	5.45	
250cm	20.96	8.72	36.20	73.60	4.71	
Bottom	20.96	8.73	36.30	78.60	5.54	

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	21.03					
010cm	21.31	8.57	35.40	123.20	8.57	2.25
050cm	21.35	8.65	35.50	119.20	6.95	
100cm	21.37	8.69	35.80	94.00	6.21	
150cm	21.37	8.71	35.80	94.50	6.55	
200cm	21.34	8.72	35.80	93.10	6.52	
250cm	21.33	8.73	35.90	92.70	6.46	
300cm	21.27	8.74	35.90	92.80	6.47	
350cm	21.26	8.74	35.90	93.10	6.53	
400cm	21.24	8.75	35.90	87.30	6.05	
450cm	21.25	8.75	35.90	92.90	6.36	
500cm	21.27	8.75	35.90	89.00	6.23	
550cm	21.29	8.76	36.00	89.60	6.14	
600cm	21.30	8.76	35.90	89.20	6.19	
650cm	21.31	8.76	36.00	89.10	6.16	
700cm	21.21	8.75	36.20	80.40	5.94	
Bottom	21.21	8.75	36.20	66.30	4.84	

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	17.37					
010cm	20.38	8.55	36.50	109.10	7.64	3.75
050cm	20.50	8.63	36.50	105.40	7.42	
100cm	20.51	8.67	36.50	104.10	7.30	
150cm	20.53	8.70	36.50	103.10	7.25	
200cm	20.54	8.71	36.30	105.10	7.39	
250cm	20.54	8.72	36.30	105.40	7.42	
300cm	20.53	8.74	36.30	105.40	7.40	
350cm	20.54	8.75	36.40	104.10	7.30	
400cm	20.55	8.76	36.40	102.10	7.15	
450cm	20.54	8.77	36.50	99.20	6.96	
500cm	20.55	8.78	36.40	99.20	6.97	
550cm	20.54	8.77	36.50	97.80	6.89	
600cm	20.54	8.74	36.60	98.00	6.88	
650cm	20.55	8.78	36.60	97.10	6.82	
700cm	20.55	8.78	36.60	95.30	6.75	
750cm	20.55	8.79	36.60	95.30	6.70	
800cm	20.56	8.79	36.60	94.20	6.60	
850cm	20.57	8.79	36.60	95.50	6.69	
900cm	20.57	8.79	36.60	95.60	6.72	
950cm	20.61	8.78	36.80	86.90	6.07	
Bottom	20.74	8.71	36.70	80.70	5.58	

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	19.84					
010cm	23.31	8.56	36.20	105.10	7.03	3.25
050cm	23.55	8.60	36.30	104.20	6.93	
100cm	23.53	8.65	36.20	103.40	6.95	
150cm	23.54	8.67	36.30	98.30	6.55	
200cm	23.52	8.67	36.20	104.90	7.04	
250cm	23.52	8.69	36.20	100.70	6.78	
300cm	23.44	8.69	36.20	101.30	6.82	
350cm	23.33	8.69	36.20	99.10	6.65	
400cm	23.15	8.69	36.20	94.10	6.41	
450cm	23.06	8.69	36.40	81.20	5.51	
500cm	21.80	8.67	36.40	71.90	4.98	
550cm	21.75	8.70	36.40	67.40	4.60	
Bottom	21.74	8.70	36.40	61.40	4.16	

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	-	04/05/2016
Copper	0.50	ug/L	-	04/05/2016
Iron	6.0	ug/L	-	04/05/2016
Lead	0.20	ug/L	-	04/05/2016
Manganese	2.2	ug/L	-	04/05/2016
Nitrite and Nitrate as N	88	ug/L	-	04/05/2016
Phosphorus Reactive as P - Total	161	ug/L	-	04/05/2016
Phosphorus as P - Total	198	ug/L	-	04/05/2016
Selenium	22.0	ug/L	-	04/05/2016
Suspended Solids (SS)	8,000	ug/L	-	04/05/2016
Zinc	5.0	ug/L	-	04/05/2016
pH	9.0	-	-	04/05/2016

- Note - Cadmium result less than detection limit, (<0.2)
- Copper result less than detection limit, (<0.5)
- Zinc result less than detection limit, (<5)
- Lead result less than detection limit, (<0.2)

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	0.90	ug/L	-	04/05/2016
Iron	6.0	ug/L	-	04/05/2016
Selenium	1.00	ug/L	-	04/05/2016
Temperature - Average	19.6	deg C	-	May 2016
Temperature - Minimum	15.5	deg C	-	May 2016
Temperature - Maximum	22.2	deg C	-	May 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	1.00	ug/L	5	04/05/2016
Iron	12.0	ug/L	300	04/05/2016
Selenium	1.00	ug/L	2	04/05/2016
Temperature - Average	28.2	deg C	35	May 2016
Temperature - Minimum	22.1	deg C	35	May 2016
Temperature - Maximum	32.4	deg C	35	May 2016
Maximum Daily Discharge from Ash Dam	24.6	ML	150	May 2016
Monthly Discharge from Ash Dam	297	ML	-	May 2016

- Note - Selenium Result <1. Result measured was less than detection limit.

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	277	ug/L	-	04/05/2016
Phosphorus as P - Total	30	ug/L	-	04/05/2016
pH	7.1	-	-	04/05/2016