



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 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 - Dec	160	191	140	16	23	4	229	239	216
2 - Dec	152	170	113	6	11	3	222	249	198
3 - Dec	138	159	116	7	10	4	231	254	189
4 - Dec	132	154	108	7	12	4	218	237	190
5 - Dec	143	163	113	7	14	3	218	233	201
6 - Dec	143	170	105	7	11	5	238	270	201
7 - Dec	128	151	105	7	13	4	232	245	202
8 - Dec	129	164	102	7	14	2	220	240	189
9 - Dec	118	135	105	8	12	6	232	251	211
10 - Dec	123	149	108	11	16	8	226	279	180
11 - Dec	128	139	116	10	16	7	199	273	157
12 - Dec	157	212	119	8	15	4	218	284	189
13 - Dec	148	190	107	9	14	3	217	251	194
14 - Dec	151	202	113	7	11	3	200	213	186
15 - Dec	132	166	110	15	22	9	174	203	164
16 - Dec	135	172	104	16	28	10	203	254	167
17 - Dec	133	176	105	10	17	6	230	276	195
18 - Dec	112	124	107	12	16	10	204	218	192
19 - Dec	166	225	108	12	20	7	180	212	162
20 - Dec	141	184	114	10	20	3	188	208	161
21 - Dec	126	156	108	9	13	6	202	224	176
22 - Dec	119	143	106	12	17	8	189	193	184
23 - Dec	115	125	108	12	17	10	182	204	162
24 - Dec	122	134	109	13	20	7	181	211	152
25 - Dec	122	125	116	13	21	10	202	212	160
26 - Dec	119	129	109	12	18	6	201	210	192
27 - Dec	119	126	113	12	17	8	192	202	183
28 - Dec	128	161	112	11	19	6	197	206	190
29 - Dec	133	179	108	10	16	3	198	210	176
30 - Dec	175	199	113	9	13	5	197	214	177
31 - Dec	125	141	107	9	13	6	179	185	170

Unit 2 Boiler Continuous Emission Monitoring Summary

EPA Identification no. 12 - Air emissions monitoring, Boiler 2 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	167	196	109	14	18	12	237	265	189
2 - Dec	147	170	121	13	17	12	219	260	169
3 - Dec	146	169	121	14	17	13	229	240	201
4 - Dec	136	161	104	15	17	12	224	232	201
5 - Dec	146	177	110	14	17	12	208	220	183
6 - Dec	144	172	103	14	17	13	224	254	187
7 - Dec	128	153	101	15	17	13	227	246	198
8 - Dec	115	148	100	17	20	14	214	234	190
9 - Dec	112	134	104	17	21	16	224	242	193
10 - Dec	131	139	107	18	20	17	222	250	188
11 - Dec	128	144	116	18	21	17	206	246	173
12 - Dec	134	169	114	17	19	15	205	238	181
13 - Dec	141	175	113	15	20	6	210	229	197
14 - Dec	145	186	110	14	17	10	191	215	164
15 - Dec	139	166	120	16	19	14	166	174	150
16 - Dec	136	160	110	13	17	11	200	248	165
17 - Dec	140	179	113	14	18	10	224	252	194
18 - Dec	130	142	110	17	19	15	210	236	175
19 - Dec	142	175	114	15	19	12	178	208	159
20 - Dec	137	171	115	15	18	9	183	204	155
21 - Dec	128	149	115	15	19	14	192	226	168
22 - Dec	122	130	104	16	18	14	193	203	183
23 - Dec	125	137	107	16	18	15	180	196	166
24 - Dec	121	140	101	15	18	12	186	210	167
25 - Dec	123	127	114	16	18	14	208	218	187
26 - Dec	117	130	100	16	17	14	207	216	183
27 - Dec	104	110	100	15	19	14	198	211	180
28 - Dec	108	125	102	15	17	12	200	205	197
29 - Dec	128	180	101	14	17	10	202	207	181
30 - Dec	137	167	106	15	19	11	188	195	168
31 - Dec	130	138	118	14	18	12	174	181	149

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	157	167	128	26	28	18	188	210	136
2 - Dec	147	166	126	24	32	18	173	200	135
3 - Dec	152	180	130	19	21	15	177	196	136
4 - Dec	152	182	116	19	21	14	165	181	132
5 - Dec	164	189	123	18	21	13	170	179	141
6 - Dec	162	180	126	20	23	15	178	194	139
7 - Dec	165	195	136	20	25	16	180	204	161
8 - Dec	176	209	135	18	22	15	174	187	145
9 - Dec	170	199	155	18	22	13	180	194	157
10 - Dec	157	185	142	19	21	13	185	234	151
11 - Dec	148	170	128	18	20	15	164	217	141
12 - Dec	191	235	154	19	21	16	181	211	161
13 - Dec	141	165	128	18	21	14	174	198	159
14 - Dec	168	223	119	18	20	15	164	179	110
15 - Dec	146	178	116	21	24	15	157	162	141
16 - Dec	154	212	109	24	33	16	178	209	147
17 - Dec	162	203	126	19	21	14	200	217	186
18 - Dec	139	150	129	18	20	16	191	203	160
19 - Dec	175	207	150	20	23	17	161	174	149
20 - Dec	151	171	123	18	21	14	156	179	116
21 - Dec	135	171	116	19	21	14	175	195	132
22 - Dec	127	145	115	19	20	17	167	188	134
23 - Dec	125	137	109	18	18	16	155	167	144
24 - Dec	126	142	102	18	21	13	152	163	136
25 - Dec	135	143	108	19	21	17	172	188	136
26 - Dec	131	142	116	18	20	15	173	183	167
27 - Dec	127	147	111	18	19	14	170	177	162
28 - Dec	136	169	114	18	22	16	170	185	145
29 - Dec	158	209	126	18	19	16	172	180	145
30 - Dec	151	198	115	18	19	14	164	174	156
31 - Dec	142	171	116	17	19	14	152	158	140

Unit 4 Boiler Continuous Emission Monitoring Summary

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

- Unit out of service until 9th December.
SO2 analyser out of service 9th - 13th.
Unit out of service 16th - 22nd.

	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	15	18	13	0	0	0
10 - Dec	0	0	0	18	21	16	119	135	100
11 - Dec	0	0	0	17	20	15	111	125	101
12 - Dec	0	0	0	14	28	11	129	156	106
13 - Dec	0	0	0	13	15	11	114	143	100
14 - Dec	126	153	102	12	15	12	197	207	157
15 - Dec	128	138	115	16	25	10	173	203	109
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	142	142	142	10	14	8	158	158	158
24 - Dec	147	158	123	12	15	11	159	183	115
25 - Dec	147	154	143	13	14	11	176	184	153
26 - Dec	148	154	132	13	15	11	173	182	158
27 - Dec	152	166	144	13	16	12	177	188	171
28 - Dec	153	166	146	13	15	11	178	189	172
29 - Dec	159	180	137	12	14	11	185	197	169
30 - Dec	159	171	138	13	15	11	173	188	163
31 - Dec	145	159	126	12	15	11	163	171	149

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	0.70	0.60	1.30
U2	0.70	0.90	1.60
U3	1.40	1.40	2.80
U4	1.90	0.80	2.70
U5	1.00	1.60	2.60
U6	0.80	0.40	1.20

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	0.60	1.10
E2	0.60	0.70	1.30
E3	1.80	0.60	2.40
E4	0.60	0.50	1.10
E5	1.20	1.20	2.40
E6	1.20	1.70	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	27.17					
010cm	26.98	8.08	34.30	109.50	7.03	2.25
050cm	26.93	8.06	34.30	115.90	7.46	
100cm	26.90	8.06	34.30	116.40	7.49	
150cm	26.86	8.06	34.90	78.00	4.99	
200cm	26.86	8.05	34.90	77.00	4.86	
Bottom	26.84	8.04	34.90	68.00	4.24	

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	
	degC		ppt	%	mg/L
010cm	26.67	8.10	35.30	128.20	7.91
050cm	26.89	8.09	35.30	126.20	8.06
100cm	26.84	8.09	35.20	130.10	8.33
150cm	26.72	8.09	35.20	132.50	8.49
200cm	26.70	8.09	35.20	139.70	8.96
250cm	26.67	8.08	35.30	86.90	5.51
300cm	26.67	8.08	35.60	83.90	5.32
350cm	26.68	8.08	35.50	58.90	3.75
400cm	26.68	8.08	35.50	58.80	3.79
450cm	26.68	8.08	35.50	58.90	3.89
Bottom	26.68	8.08	35.50	60.60	3.86

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	24.44					
010cm	24.45	8.15	34.20	121.90	8.14	2.75
050cm	24.52	8.12	34.20	123.10	8.22	
100cm	24.53	8.09	34.20	127.50	8.51	
150cm	24.54	8.07	34.20	132.30	8.83	
200cm	24.54	8.08	34.30	106.20	7.01	
250cm	24.55	8.08	34.30	107.50	7.01	
300cm	24.55	8.09	31.70	104.20	6.88	
350cm	24.55	8.09	31.70	103.60	6.88	
400cm	24.55	8.09	34.80	100.00	6.61	
450cm	24.54	8.09	34.80	102.10	6.71	
500cm	24.54	8.09	34.80	100.10	6.55	
550cm	24.54	8.09	31.70	102.10	6.81	
600cm	24.52	8.10	31.70	99.80	6.64	
650cm	24.52	8.09	31.70	94.20	6.23	
700cm	24.42	8.10	31.70	94.30	6.42	
750cm	24.27	8.09	31.70	94.00	6.38	
800cm	24.23	8.10	31.70	94.50	6.42	
850cm	24.20	8.10	31.70	94.10	6.32	
900cm	24.15	8.10	31.70	93.30	6.26	
Bottom	23.91	8.09	31.70	92.40	6.21	

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	24.96					
010cm	28.12	8.04	34.70	111.20	8.20	2.25
050cm	28.51	8.02	35.20	108.10	6.73	
100cm	28.49	8.02	35.20	106.90	6.70	
150cm	28.47	8.02	35.20	104.80	6.54	
200cm	28.14	8.02	35.20	102.20	6.62	
250cm	28.23	8.03	35.20	99.90	6.32	
300cm	28.09	8.03	35.20	102.10	6.28	
350cm	27.99	8.03	35.20	96.30	6.43	
400cm	27.90	8.03	35.20	99.30	6.36	
450cm	27.87	8.03	35.20	98.70	6.17	
500cm	27.86	8.03	35.20	102.00	6.41	
550cm	27.88	8.03	35.20	98.30	6.36	
600cm	27.86	8.02	35.20	97.10	6.09	
Bottom	27.80	7.95	35.00	85.90	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	0.08	ug/L	-	01/12/2016
Copper	27	ug/L	-	01/12/2016
Iron	12.0	ug/L	-	01/12/2016
Lead	0.10	ug/L	-	01/12/2016
Manganese	34	ug/L	-	01/12/2016
Nitrite and Nitrate as N	439	ug/L	-	01/12/2016
Phosphorus Reactive as P - Total	5.0	ug/L	-	01/12/2016
Phosphorus as P - Total	52	ug/L	-	01/12/2016
Selenium	47	ug/L	-	01/12/2016
Suspended Solids (SS)	23,000	ug/L	-	01/12/2016
Zinc	12.0	ug/L	-	01/12/2016
pH	8.6	-	-	01/12/2016

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	0.90	ug/L	-	01/12/2016
Iron	5.0	ug/L	-	01/12/2016
Selenium	1.00	ug/L	-	01/12/2016
Temperature - Average	25.4	deg C	-	Dec 2016
Temperature - Minimum	14.9	deg C	-	Dec 2016
Temperature - Maximum	30.8	deg C	-	Dec 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	1.90	ug/L	5	01/12/2016
Iron	14.0	ug/L	300	01/12/2016
Selenium	1.00	ug/L	2	01/12/2016
Temperature - Average	31.1	deg C	35	Dec 2016
Temperature - Minimum	26.9	deg C	35	Dec 2016
Temperature - Maximum	35.0	deg C	35	Dec 2016
Maximum Daily Discharge from Ash Dam	11.9	ML	150	Dec 2016
Monthly Discharge from Ash Dam	126	ML	-	Dec 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	238	ug/L	-	01/12/2016
Phosphorus as P - Total	32	ug/L	-	01/12/2016
pH	7.1	-	-	01/12/2016