



## **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**

**September 2015**



## 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% O <sub>2</sub> )			mg/m <sup>3</sup>			ppm (7% O <sub>2</sub> )		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Sep	147	167	121	14	20	11	185	196	170
2 - Sep	143	171	129	15	23	10	175	184	163
3 - Sep	150	173	128	12	18	10	195	211	174
4 - Sep	145	167	129	13	19	11	184	200	163
5 - Sep	132	194	110	14	21	9	172	186	157
6 - Sep	139	192	112	13	19	9	162	171	157
7 - Sep	159	187	126	12	24	8	170	181	159
8 - Sep	148	180	126	12	16	9	178	190	163
9 - Sep	147	163	130	14	19	12	174	189	162
10 - Sep	151	168	117	15	21	13	171	179	162
11 - Sep	147	166	116	15	21	11	175	182	165
12 - Sep	148	172	124	14	23	10	178	193	158
13 - Sep	123	141	112	14	19	11	165	173	159
14 - Sep	147	171	120	13	20	9	162	169	152
15 - Sep	149	170	120	13	18	9	179	213	155
16 - Sep	153	172	140	14	24	11	186	207	176
17 - Sep	152	164	142	15	21	12	204	237	166
18 - Sep	156	171	136	14	19	11	207	236	175
19 - Sep	162	179	133	15	19	12	229	241	213
20 - Sep	159	178	127	15	23	12	204	232	171
21 - Sep	159	182	119	15	25	11	210	243	169
22 - Sep	171	193	155	15	20	12	223	238	195
23 - Sep	183	200	170	17	24	14	230	257	205
24 - Sep	190	206	140	21	29	15	207	230	187
25 - Sep	181	195	152	21	29	17	238	255	210
26 - Sep	176	192	158	19	24	15	208	228	191
27 - Sep	191	208	158	20	23	14	186	203	171
28 - Sep	167	197	146	15	20	12	183	205	172
29 - Sep	159	187	144	14	22	10	188	208	172
30 - Sep	167	184	144	15	19	12	193	222	167

## Unit 2 Boiler Continuous Emission Monitoring Summary

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

- Unit out of service from 5th September for scheduled maintenance.

	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 - Sep	120	136	106	11	15	8	174	195	158
2 - Sep	127	144	103	12	18	8	164	177	155
3 - Sep	144	174	115	11	16	8	172	184	161
4 - Sep	139	162	113	12	14	9	180	198	155
5 - Sep	139	173	106	14	18	10	165	188	150
6 - Sep	0	0	0	0	0	0	0	0	0
7 - Sep	0	0	0	0	0	0	0	0	0
8 - Sep	0	0	0	0	0	0	0	0	0
9 - Sep	0	0	0	0	0	0	0	0	0
10 - Sep	0	0	0	0	0	0	0	0	0
11 - Sep	0	0	0	0	0	0	0	0	0
12 - Sep	0	0	0	0	0	0	0	0	0
13 - Sep	0	0	0	0	0	0	0	0	0
14 - Sep	0	0	0	0	0	0	0	0	0
15 - Sep	0	0	0	0	0	0	0	0	0
16 - Sep	0	0	0	0	0	0	0	0	0
17 - Sep	0	0	0	0	0	0	0	0	0
18 - Sep	0	0	0	0	0	0	0	0	0
19 - Sep	0	0	0	0	0	0	0	0	0
20 - Sep	0	0	0	0	0	0	0	0	0
21 - Sep	0	0	0	0	0	0	0	0	0
22 - Sep	0	0	0	0	0	0	0	0	0
23 - Sep	0	0	0	0	0	0	0	0	0
24 - Sep	0	0	0	0	0	0	0	0	0
25 - Sep	0	0	0	0	0	0	0	0	0
26 - Sep	0	0	0	0	0	0	0	0	0
27 - Sep	0	0	0	0	0	0	0	0	0
28 - Sep	0	0	0	0	0	0	0	0	0
29 - Sep	0	0	0	0	0	0	0	0	0
30 - Sep	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*

- Sox Instrument out of service - 10th - 14th.

Unit out of service 19th - 26th

	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 - Sep	177	217	134	12	17	9	193	202	177
2 - Sep	187	214	142	12	17	9	190	200	174
3 - Sep	192	221	150	11	14	8	202	223	172
4 - Sep	190	223	160	11	14	9	194	208	186
5 - Sep	168	187	151	11	13	9	187	206	171
6 - Sep	174	206	158	11	14	9	173	182	168
7 - Sep	184	205	155	11	15	9	178	183	173
8 - Sep	170	204	138	12	16	9	190	206	167
9 - Sep	180	228	139	13	18	10	189	201	179
10 - Sep	196	217	163	12	17	10	0	0	0
11 - Sep	182	204	162	13	15	10	0	0	0
12 - Sep	180	194	160	13	18	10	0	0	0
13 - Sep	158	178	149	12	13	10	0	0	0
14 - Sep	178	204	158	13	16	10	0	0	0
15 - Sep	163	183	147	12	17	10	201	212	188
16 - Sep	158	169	131	13	18	10	197	209	164
17 - Sep	160	172	139	16	23	11	213	245	179
18 - Sep	174	187	111	13	19	11	160	160	160
19 - Sep	0	0	0	0	0	0	0	0	0
20 - Sep	0	0	0	0	0	0	0	0	0
21 - Sep	0	0	0	0	0	0	0	0	0
22 - Sep	0	0	0	0	0	0	0	0	0
23 - Sep	0	0	0	0	0	0	0	0	0
24 - Sep	0	0	0	0	0	0	0	0	0
25 - Sep	0	0	0	0	0	0	0	0	0
26 - Sep	0	0	0	0	0	0	0	0	0
27 - Sep	162	171	153	18	25	4	0	0	0
28 - Sep	189	214	161	15	21	10	0	0	0
29 - Sep	161	206	136	14	19	11	216	228	191
30 - Sep	140	160	136	12	14	9	201	228	163

## 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% O <sub>2</sub> )			mg/m <sup>3</sup>			ppm (7% O <sub>2</sub> )		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Sep	153	175	135	10	18	7	178	200	162
2 - Sep	151	168	137	9	15	7	173	183	159
3 - Sep	153	169	121	9	12	6	175	194	145
4 - Sep	131	155	111	9	14	8	186	199	163
5 - Sep	135	164	118	9	14	6	164	178	147
6 - Sep	146	181	122	8	13	6	155	173	137
7 - Sep	163	199	138	9	15	7	163	177	140
8 - Sep	143	175	84	11	16	6	172	197	153
9 - Sep	161	186	135	5	10	3	167	184	154
10 - Sep	162	182	83	6	9	5	169	183	158
11 - Sep	155	179	125	6	9	4	177	187	161
12 - Sep	158	178	135	7	10	4	178	211	150
13 - Sep	132	157	120	7	14	3	156	163	146
14 - Sep	154	189	130	8	14	4	158	167	146
15 - Sep	161	199	130	5	9	3	178	216	144
16 - Sep	174	188	160	6	10	4	179	192	166
17 - Sep	178	225	161	7	11	5	196	240	157
18 - Sep	180	200	150	7	10	5	192	225	165
19 - Sep	176	194	153	7	11	5	233	265	197
20 - Sep	177	200	156	10	16	4	192	227	163
21 - Sep	186	193	165	16	21	10	200	232	146
22 - Sep	186	197	173	19	27	4	210	233	182
23 - Sep	184	212	171	15	20	4	200	229	178
24 - Sep	186	199	166	16	20	14	182	194	168
25 - Sep	186	193	163	18	22	16	209	226	187
26 - Sep	180	196	162	6	20	4	184	214	167
27 - Sep	186	199	170	21	43	5	162	174	149
28 - Sep	180	193	151	15	27	5	168	188	130
29 - Sep	194	238	170	7	25	3	166	188	107
30 - Sep	188	235	141	5	11	3	173	204	119

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## Unit 1 Boiler Emission Test Results

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*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

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## Unit 2 Boiler Emission Test Results

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*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

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### Unit 3 Boiler Emission Test Results

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*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



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## Unit 4 Boiler Emission Test Results

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*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

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## Eraring Coal Unloader Dust Gauges

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

	Deposited Matter		
	g/m2/month		
	Ash	Combustible	Insolubles
U1	0.30	0.10	0.40
U2	0.50	0.20	0.70
U3	8.40	7.20	15.60
U4	0.40	0.30	0.70
U5	0.70	0.30	1.00
U6	1.30	0.20	1.50

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## Eraring Due Diligence Dust Gauges

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

	Deposited Matter		
	g/m2/month		
	Ash	Combustible	Insolubles
E1	0.70	0.20	0.90
E2	0.30	0.10	0.40
E3	12.20	0.60	12.80
E4	0.80	0.20	1.00
E5	3.10	0.30	3.40
E6	1.40	1.60	3.00

## 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
<b>Depth/Air</b>	18.01					
<b>010cm</b>	16.85	8.44	35.60	115.30	8.73	2.50
<b>050cm</b>	16.78	8.45	35.70	104.30	7.87	
<b>100cm</b>	16.61	8.64	35.70	103.70	7.89	
<b>150cm</b>	16.44	8.68	35.70	100.30	7.60	
<b>200cm</b>	16.34	8.70	35.80	98.10	7.55	
<b>Bottom</b>	16.17	8.71	35.70	102.30	7.88	

## 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
<b>Depth/Air</b>	17.01					
<b>010cm</b>	17.37	8.40	35.50	97.80	7.32	2.75
<b>050cm</b>	17.49	8.49	35.40	98.90	7.40	
<b>100cm</b>	17.51	8.60	35.40	97.30	7.27	
<b>150cm</b>	17.48	8.65	35.50	97.60	7.33	
<b>200cm</b>	17.05	8.68	35.50	97.40	7.35	
<b>250cm</b>	16.95	8.69	35.50	97.70	7.37	
<b>300cm</b>	16.68	8.72	35.60	99.10	7.53	
<b>350cm</b>	16.35	8.72	35.60	101.00	7.70	
<b>400cm</b>	16.23	8.72	35.60	100.40	7.68	
<b>450cm</b>	16.35	8.73	35.70	101.20	7.76	
<b>500cm</b>	16.44	8.74	35.80	103.80	7.90	
<b>550cm</b>	16.45	8.73	35.80	102.40	7.79	
<b>600cm</b>	16.38	8.74	36.00	101.90	7.76	
<b>650cm</b>	16.36	8.73	36.10	102.40	7.79	
<b>700cm</b>	16.36	8.73	36.10	101.20	7.68	
<b>750cm</b>	16.35	8.73	36.10	102.20	7.78	
<b>Bottom</b>	16.36	8.73	36.00	102.30	7.79	

## 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
<b>Depth/Air</b>	9.03					
<b>010cm</b>	15.55	8.37	35.80	102.60	7.96	3.75
<b>050cm</b>	15.67	8.43	36.60	106.80	8.22	
<b>100cm</b>	15.68	8.48	36.60	109.70	8.42	
<b>150cm</b>	15.68	8.50	36.60	108.70	8.32	
<b>200cm</b>	15.68	8.50	36.60	110.00	8.45	
<b>250cm</b>	15.72	8.51	37.30	113.10	8.61	
<b>300cm</b>	15.72	8.55	37.00	112.00	8.55	
<b>350cm</b>	15.72	8.56	37.00	111.40	8.53	
<b>400cm</b>	15.72	8.56	36.90	109.40	8.37	
<b>450cm</b>	15.72	8.59	36.90	110.00	8.42	
<b>500cm</b>	15.74	8.59	36.90	110.00	8.43	
<b>550cm</b>	15.75	8.61	36.80	108.50	8.28	
<b>600cm</b>	15.76	8.62	36.80	110.40	8.45	
<b>650cm</b>	15.75	8.60	36.90	108.60	8.34	
<b>700cm</b>	15.81	8.60	36.90	106.40	8.11	
<b>750cm</b>	15.82	8.60	36.90	102.20	7.76	
<b>800cm</b>	15.91	8.59	37.00	105.30	8.02	
<b>850cm</b>	15.92	8.54	37.00	104.30	7.95	
<b>900cm</b>	15.93	8.54	37.00	104.30	7.96	
<b>Bottom</b>	15.95	8.58	37.10	103.00	7.83	

## 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
<b>Depth/Air</b>	15.13					
<b>010cm</b>	18.55	8.45	35.00	116.40	8.54	3.75
<b>050cm</b>	18.93	8.51	34.80	124.10	9.09	
<b>100cm</b>	18.93	8.53	34.90	128.70	9.44	
<b>150cm</b>	18.93	8.56	34.80	132.90	9.73	
<b>200cm</b>	18.87	8.60	34.90	138.90	10.14	
<b>250cm</b>	18.26	8.61	35.00	146.40	10.87	
<b>300cm</b>	17.38	8.63	35.00	154.00	11.59	
<b>350cm</b>	16.84	8.63	35.00	157.00	11.92	
<b>400cm</b>	16.79	8.62	35.00	156.30	11.87	
<b>450cm</b>	16.74	8.63	35.20	159.30	12.12	
<b>500cm</b>	16.60	8.68	35.30	162.90	12.40	
<b>550cm</b>	16.58	8.68	35.40	165.10	12.55	
<b>Bottom</b>	16.58	8.64	36.20	81.40	6.08	

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## Eraring Ash Dam Effluent Quality Monitoring

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*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	0.06	ug/L	-	01/09/2015
Copper	1.00	ug/L	-	01/09/2015
Iron	2.0	ug/L	-	01/09/2015
Lead	0.10	ug/L	-	01/09/2015
Manganese	39	ug/L	-	01/09/2015
Nitrite and Nitrate as N	415	ug/L	-	01/09/2015
Phosphorus Reactive as P - Total	180	ug/L	-	01/09/2015
Phosphorus as P - Total	190	ug/L	-	01/09/2015
Selenium	22.0	ug/L	-	01/09/2015
Suspended Solids (SS)	5.0	mg/L	-	01/09/2015
Zinc	2.0	ug/L	-	01/09/2015
pH	9.4	-	-	01/09/2015

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## Eraring Cooling Water Inlet Canal

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*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	-	01/09/2015
Iron	5.0	ug/L	-	01/09/2015
Selenium	2.00	ug/L	-	01/09/2015
Temperature - Average	18.0	deg C	-	Sep 2015
Temperature - Minimum	16.0	deg C	-	Sep 2015
Temperature - Maximum	20.6	deg C	-	Sep 2015

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## Eraring Cooling Water Outlet Canal

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*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	01/09/2015
Iron	10.0	ug/L	300	01/09/2015
Selenium	2.00	ug/L	2	01/09/2015
Temperature - Average	26.3	deg C	35	Sep 2015
Temperature - Minimum	20.2	deg C	35	Sep 2015
Temperature - Maximum	31.6	deg C	35	Sep 2015
Maximum Daily Discharge from Ash Dam	11.7	ML	150	Sep 2015
Monthly Discharge from Ash Dam	328	ML	-	Sep 2015

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## Emergency Discharge - Toe Drain Pond

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*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	160	ug/L	-	01/09/2015
Phosphorus as P - Total	45	ug/L	-	01/09/2015
pH	6.9	-	-	01/09/2015