



## Eraring Power Station - EPA Licence 1429

Rocky Point Rd, Morisset NSW 2264

## Coal Unloader - EPA Licence 4297

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

## Environmental Monitoring Data

March 2016



## Unit 1 Boiler Continuous Emission Monitoring Summary

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

- Unit 1 out of service 1st - 6th.
- 20th Unit SOX instrumentation 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 - Mar	0	0	0	0	0	0	0	0	0
2 - Mar	0	0	0	0	0	0	0	0	0
3 - Mar	0	0	0	0	0	0	0	0	0
4 - Mar	0	0	0	0	0	0	0	0	0
5 - Mar	0	0	0	0	0	0	0	0	0
6 - Mar	0	0	0	0	0	0	0	0	0
7 - Mar	142	164	129	11	23	8	198	211	180
8 - Mar	150	171	135	13	17	10	195	222	181
9 - Mar	155	176	117	12	17	9	197	215	169
10 - Mar	122	136	104	12	18	9	187	203	122
11 - Mar	134	198	111	13	17	10	184	212	133
12 - Mar	169	196	116	13	17	10	161	202	131
13 - Mar	171	212	113	13	18	9	145	165	106
14 - Mar	170	209	121	13	17	11	151	182	121
15 - Mar	167	198	117	14	18	11	167	194	120
16 - Mar	164	186	115	16	22	11	169	177	154
17 - Mar	166	194	102	14	18	12	165	178	122
18 - Mar	175	199	147	12	19	9	153	166	145
19 - Mar	166	207	141	10	15	9	156	162	151
20 - Mar	148	173	105	15	21	10	0	0	0
21 - Mar	146	210	108	13	19	8	155	161	147
22 - Mar	138	156	100	11	17	8	158	171	101
23 - Mar	178	215	113	10	15	7	154	176	103
24 - Mar	198	220	150	9	15	6	148	159	120
25 - Mar	138	186	107	10	15	6	156	164	131
26 - Mar	154	163	129	9	15	6	144	152	101
27 - Mar	150	189	126	11	16	7	144	153	125
28 - Mar	149	166	113	11	19	7	144	157	113
29 - Mar	139	153	110	11	19	8	157	163	112
30 - Mar	140	156	110	10	15	8	156	165	113
31 - Mar	150	176	110	10	15	8	149	159	131

## Unit 2 Boiler Continuous Emission Monitoring Summary

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

- 8th - 18th 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 - Mar	137	167	118	13	16	9	212	231	200
2 - Mar	133	162	112	15	18	13	201	219	190
3 - Mar	137	165	113	14	17	13	197	212	185
4 - Mar	145	178	122	15	18	13	188	211	160
5 - Mar	132	158	103	15	18	12	219	230	197
6 - Mar	126	144	105	14	18	10	211	238	186
7 - Mar	139	487	102	14	17	12	226	243	196
8 - Mar	0	0	0	0	0	0	0	0	0
9 - Mar	0	0	0	0	0	0	0	0	0
10 - Mar	0	0	0	0	0	0	0	0	0
11 - Mar	0	0	0	0	0	0	0	0	0
12 - Mar	0	0	0	0	0	0	0	0	0
13 - Mar	0	0	0	0	0	0	0	0	0
14 - Mar	0	0	0	0	0	0	0	0	0
15 - Mar	0	0	0	0	0	0	0	0	0
16 - Mar	0	0	0	0	0	0	0	0	0
17 - Mar	0	0	0	0	0	0	0	0	0
18 - Mar	0	0	0	0	0	0	0	0	0
19 - Mar	130	149	106	12	18	10	194	231	152
20 - Mar	155	172	134	15	18	13	165	178	154
21 - Mar	161	176	147	13	16	9	157	170	149
22 - Mar	155	171	133	12	15	9	167	175	155
23 - Mar	174	214	127	11	15	9	167	186	157
24 - Mar	191	223	138	11	15	8	154	164	140
25 - Mar	161	195	132	12	15	9	165	174	151
26 - Mar	150	194	109	10	15	8	150	156	140
27 - Mar	146	177	127	13	15	10	149	158	143
28 - Mar	132	165	115	12	16	9	151	156	137
29 - Mar	126	152	107	12	15	9	161	165	150
30 - Mar	132	157	101	12	14	10	163	169	153
31 - Mar	155	185	109	12	15	10	163	179	156

## Unit 3 Boiler Continuous Emission Monitoring Summary

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

- 17th - 21st Unit out of service
- 24th - 31st 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 - Mar	138	153	126	17	21	14	201	213	113
2 - Mar	140	148	130	18	22	15	193	215	173
3 - Mar	155	180	131	17	21	13	182	201	161
4 - Mar	151	163	132	17	21	14	178	200	104
5 - Mar	147	173	131	18	22	14	203	220	110
6 - Mar	151	170	130	18	22	15	186	204	104
7 - Mar	146	169	126	17	23	14	205	222	176
8 - Mar	159	182	126	17	23	15	196	219	114
9 - Mar	166	186	145	16	20	14	178	211	103
10 - Mar	156	178	128	17	22	13	186	203	105
11 - Mar	159	169	135	17	21	14	199	222	167
12 - Mar	153	169	136	16	21	13	166	191	148
13 - Mar	153	171	129	17	22	14	153	171	144
14 - Mar	150	177	130	17	21	14	151	170	140
15 - Mar	144	175	102	17	21	15	178	200	165
16 - Mar	168	178	148	18	22	14	177	193	108
17 - Mar	0	0	0	17	22	14	0	0	0
18 - Mar	0	0	0	16	21	13	0	0	0
19 - Mar	0	0	0	17	20	15	0	0	0
20 - Mar	0	0	0	19	22	16	0	0	0
21 - Mar	145	170	127	18	24	15	0	0	0
22 - Mar	138	154	123	17	21	15	159	165	118
23 - Mar	143	164	133	17	21	14	145	167	106
24 - Mar	150	155	145	19	23	16	0	0	0
25 - Mar	0	0	0	0	0	0	0	0	0
26 - Mar	0	0	0	0	0	0	0	0	0
27 - Mar	0	0	0	0	0	0	0	0	0
28 - Mar	0	0	0	0	0	0	0	0	0
29 - Mar	0	0	0	0	0	0	0	0	0
30 - Mar	0	0	0	0	0	0	0	0	0
31 - Mar	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*

- 17th - 21st Unit out of service
- 24th - 29th 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 - Mar	128	140	113	7	11	5	201	231	182
2 - Mar	128	146	112	7	10	6	193	215	173
3 - Mar	137	161	116	7	10	6	187	216	167
4 - Mar	143	157	121	7	10	5	168	195	150
5 - Mar	136	149	117	7	11	5	194	227	144
6 - Mar	139	149	124	7	11	5	192	243	154
7 - Mar	145	166	124	7	10	5	209	232	183
8 - Mar	130	139	120	8	10	5	196	223	176
9 - Mar	137	155	116	7	12	5	190	224	165
10 - Mar	124	134	110	6	9	5	188	207	150
11 - Mar	133	142	122	7	9	5	186	209	162
12 - Mar	141	156	123	6	9	5	160	179	141
13 - Mar	145	158	127	6	10	5	155	174	135
14 - Mar	144	160	127	6	9	5	152	173	125
15 - Mar	131	155	118	6	10	4	149	192	121
16 - Mar	143	162	126	6	10	5	143	176	126
17 - Mar	0	0	0	7	12	6	0	0	0
18 - Mar	0	0	0	7	11	5	0	0	0
19 - Mar	0	0	0	7	11	6	0	0	0
20 - Mar	0	0	0	7	11	5	0	0	0
21 - Mar	180	190	167	8	11	6	0	0	0
22 - Mar	173	183	164	8	14	7	136	172	104
23 - Mar	173	184	142	7	12	5	148	173	102
24 - Mar	0	0	0	5	10	2	0	0	0
25 - Mar	0	0	0	8	11	7	0	0	0
26 - Mar	0	0	0	8	12	7	0	0	0
27 - Mar	0	0	0	8	12	7	0	0	0
28 - Mar	0	0	0	8	11	6	0	0	0
29 - Mar	145	149	142	8	11	5	0	0	0
30 - Mar	147	162	122	7	10	5	140	155	124
31 - Mar	128	139	119	8	10	6	128	154	104

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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	0.06	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

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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	0.05	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



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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	0.0006	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
<b>U1</b>	0.30	0.20	0.50
<b>U2</b>	0.40	0.20	0.60
<b>U3</b>	0.50	0.50	1.00
<b>U4</b>	0.90	0.30	1.20
<b>U5</b>	0.60	0.10	0.70
<b>U6</b>	0.60	0.10	0.60

## 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
<b>E1</b>	0.40	0.40	0.80
<b>E2</b>	0.40	0.10	0.50
<b>E3</b>	0.30	0.20	0.50
<b>E4</b>	0.50	0.30	0.80
<b>E5</b>	0.30	0.10	0.40
<b>E6</b>	0.20	0.30	0.50

## 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	26.10					
010cm	27.12	8.69	33.90	100.50	6.41	2.75
050cm	27.64	8.70	33.90	107.30	6.85	
100cm	27.80	8.72	33.90	113.10	7.20	
150cm	27.74	8.75	33.90	118.20	7.53	
200cm	27.64	8.75	33.90	116.20	7.54	
250cm	27.39	8.76	34.00	79.70	4.89	
Bottom	27.40	8.79	33.70	69.60	4.40	

## 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	24.12					
010cm	27.90	8.60	33.20	99.75	6.38	4.25
050cm	27.44	8.61	33.30	101.20	6.45	
100cm	27.97	8.69	33.10	108.70	6.94	
150cm	27.99	8.74	33.30	117.10	7.47	
200cm	27.94	8.77	33.30	126.60	8.06	
250cm	27.77	8.75	33.70	80.70	5.16	
300cm	27.58	8.76	33.70	81.80	5.37	
350cm	27.30	8.77	33.70	83.50	5.51	
400cm	27.15	8.77	33.70	77.40	5.01	
450cm	26.83	8.77	33.70	85.40	5.52	
500cm	26.67	8.80	33.80	81.70	5.11	
550cm	26.59	8.80	33.90	81.80	5.32	
600cm	26.34	8.74	34.10	64.20	4.17	
650cm	26.02	8.67	34.40	51.90	3.24	
700cm	25.85	8.61	34.50	41.20	2.79	
Bottom	25.79	8.57	34.60	38.70	2.51	

## 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	20.81					
010cm	25.32	8.04	34.20	98.90	6.58	6.25
050cm	25.43	8.06	34.20	103.00	6.79	
100cm	25.66	7.74	34.10	107.60	7.07	
150cm	25.78	7.69	34.00	111.50	7.31	
200cm	25.77	7.74	34.10	116.80	7.67	
250cm	25.79	7.84	34.70	120.30	7.86	
300cm	25.84	7.97	34.70	125.10	8.15	
350cm	25.84	7.97	34.70	129.20	8.42	
400cm	25.85	7.98	34.70	132.00	8.61	
450cm	25.87	8.01	34.70	136.20	8.88	
500cm	25.84	8.02	34.80	140.30	9.15	
550cm	25.83	8.03	34.80	144.80	9.44	
600cm	25.71	8.04	34.90	150.40	9.84	
650cm	25.29	8.07	35.00	155.40	10.21	
700cm	25.29	8.11	35.10	157.70	10.36	
750cm	25.03	8.14	35.20	147.10	9.67	
800cm	24.75	8.19	35.30	140.60	9.29	
850cm	24.40	8.20	35.50	136.40	9.04	
900cm	24.38	8.25	35.50	137.40	9.10	
950cm	23.89	8.26	35.80	133.70	8.94	
Bottom	23.87	8.31	35.80	129.40	8.67	

## 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	24.17					
010cm	27.64	8.62	33.60	97.90	6.21	3.25
050cm	28.73	8.61	33.20	100.10	6.37	
100cm	28.83	8.66	33.30	98.20	6.14	
150cm	28.84	8.67	33.20	100.80	6.33	
200cm	28.89	8.67	33.20	101.40	6.37	
250cm	28.87	8.67	33.30	98.00	6.23	
300cm	28.76	8.70	33.30	98.10	6.19	
350cm	28.64	8.70	33.30	96.40	6.03	
400cm	28.53	8.71	33.30	94.90	6.01	
450cm	28.20	8.71	33.30	87.20	5.55	
500cm	27.06	8.69	33.40	88.20	5.68	
550cm	26.79	8.73	33.50	86.40	5.58	
600cm	26.58	8.66	33.60	71.60	4.68	
Bottom	26.55	8.67	33.90	52.10	3.28	

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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	0.20	ug/L	-	03/03/2016
Copper	0.60	ug/L	-	03/03/2016
Iron	4.0	ug/L	-	03/03/2016
Lead	0.20	ug/L	-	03/03/2016
Manganese	20.3	ug/L	-	03/03/2016
Nitrite and Nitrate as N	74	ug/L	-	03/03/2016
Phosphorus Reactive as P - Total	143	ug/L	-	03/03/2016
Phosphorus as P - Total	169	ug/L	-	03/03/2016
Selenium	24.0	ug/L	-	03/03/2016
Suspended Solids (SS)	5.0	mg/L	-	03/03/2016
Zinc	5.0	ug/L	-	03/03/2016
pH	9.5	-	-	03/03/2016

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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	0.50	ug/L	-	03/03/2016
Iron	5.0	ug/L	-	03/03/2016
Selenium	1.00	ug/L	-	03/03/2016
Temperature - Average	26.0	deg C	-	Mar 2016
Temperature - Minimum	22.8	deg C	-	Mar 2016
Temperature - Maximum	28.6	deg C	-	Mar 2016

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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	0.50	ug/L	5	03/03/2016
Iron	5.0	ug/L	300	03/03/2016
Selenium	1.00	ug/L	2	03/03/2016
Temperature - Average	32.7	deg C	35	Mar 2016
Temperature - Minimum	28.4	deg C	35	Mar 2016
Temperature - Maximum	35.0	deg C	35	Mar 2016
Maximum Daily Discharge from Ash Dam	14.0	ML	150	Mar 2016
Monthly Discharge from Ash Dam	101	ML	-	Mar 2016

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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	205	ug/L	-	03/03/2016
Phosphorus as P - Total	103	ug/L	-	03/03/2016
pH	6.6	-	-	03/03/2016