



## 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

June 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 13th - 26th, Sox instrument failed on return to service from 27th - 30th.

	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 - Jun	133	152	110	13	19	10	171	217	153
2 - Jun	133	149	119	13	21	10	174	189	158
3 - Jun	132	143	117	12	18	9	180	191	172
4 - Jun	134	147	104	15	27	10	170	202	155
5 - Jun	131	150	100	17	28	10	173	197	151
6 - Jun	144	158	107	11	15	9	164	177	146
7 - Jun	140	156	106	12	17	10	174	187	163
8 - Jun	141	151	117	12	18	11	168	180	154
9 - Jun	134	147	116	12	17	10	169	192	115
10 - Jun	123	129	111	12	16	10	187	202	163
11 - Jun	125	143	104	13	19	11	174	203	153
12 - Jun	136	148	121	14	22	11	184	197	167
13 - Jun	0	0	0	0	0	0	0	0	0
14 - Jun	0	0	0	0	0	0	0	0	0
15 - Jun	0	0	0	0	0	0	0	0	0
16 - Jun	0	0	0	0	0	0	0	0	0
17 - Jun	0	0	0	0	0	0	0	0	0
18 - Jun	0	0	0	0	0	0	0	0	0
19 - Jun	0	0	0	0	0	0	0	0	0
20 - Jun	0	0	0	0	0	0	0	0	0
21 - Jun	136	159	103	14	35	9	172	192	151
22 - Jun	0	0	0	0	0	0	0	0	0
23 - Jun	0	0	0	0	0	0	0	0	88
24 - Jun	0	0	0	0	0	0	0	0	0
25 - Jun	0	0	0	0	0	0	0	0	0
26 - Jun	0	0	0	0	0	0	0	0	0
27 - Jun	183	247	166	13	23	10	0	0	0
28 - Jun	164	254	124	11	14	10	0	0	0
29 - Jun	156	237	117	12	19	9	0	0	0
30 - Jun	165	232	123	13	19	10	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 7th - 9th, Sox instrument out of service 12th - 19th.

	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 - Jun	138	145	126	21	24	18	197	215	177
2 - Jun	142	147	135	21	25	19	188	203	168
3 - Jun	142	146	137	20	23	18	196	213	185
4 - Jun	121	131	113	20	24	17	189	203	176
5 - Jun	123	139	116	19	22	17	183	209	167
6 - Jun	131	152	122	18	22	16	181	194	169
7 - Jun	0	0	0	0	0	0	0	0	0
8 - Jun	0	0	0	0	0	0	0	0	0
9 - Jun	0	0	0	0	0	0	0	0	0
10 - Jun	127	148	109	18	20	16	186	204	165
11 - Jun	135	207	110	20	35	8	193	214	147
12 - Jun	171	213	111	19	23	18	0	0	0
13 - Jun	203	229	166	20	24	18	0	0	0
14 - Jun	207	235	132	21	25	17	0	0	0
15 - Jun	151	190	105	22	27	18	0	0	0
16 - Jun	170	242	103	22	27	19	0	0	0
17 - Jun	172	223	108	21	26	19	0	0	0
18 - Jun	178	229	105	21	24	19	0	0	0
19 - Jun	167	192	138	21	25	19	0	0	0
20 - Jun	179	196	151	18	21	17	213	225	205
21 - Jun	138	162	110	18	21	16	242	267	228
22 - Jun	165	200	110	19	21	18	217	248	152
23 - Jun	148	174	121	20	23	18	183	218	101
24 - Jun	177	223	119	20	22	18	168	184	150
25 - Jun	151	202	109	21	24	19	155	162	144
26 - Jun	158	173	136	21	25	18	185	223	138
27 - Jun	157	177	101	19	24	17	172	196	154
28 - Jun	145	166	115	18	21	17	178	205	151
29 - Jun	125	142	106	19	23	16	203	230	177
30 - Jun	133	150	105	19	25	17	188	243	153

## Unit 3 Boiler Continuous Emission Monitoring Summary

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

- - Unit out of service 1st - 3rd

	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 - Jun	0	0	0	0	0	0	0	0	0
2 - Jun	0	0	0	0	0	0	0	0	0
3 - Jun	0	0	0	0	0	0	0	0	0
4 - Jun	143	164	106	16	23	13	163	180	135
5 - Jun	139	162	111	17	29	14	172	184	146
6 - Jun	141	161	105	13	15	12	161	168	134
7 - Jun	153	165	145	16	24	13	169	185	137
8 - Jun	150	156	130	20	25	14	163	184	135
9 - Jun	141	160	126	16	21	13	163	180	140
10 - Jun	122	130	118	12	23	10	173	186	160
11 - Jun	128	134	119	13	16	12	160	172	156
12 - Jun	134	142	127	14	16	13	155	163	146
13 - Jun	141	151	131	13	17	12	143	147	139
14 - Jun	148	159	137	13	17	12	149	157	140
15 - Jun	139	148	132	14	16	12	152	166	148
16 - Jun	126	138	116	13	17	10	173	184	160
17 - Jun	127	141	116	12	14	10	175	187	168
18 - Jun	159	166	141	12	17	11	152	168	144
19 - Jun	168	175	163	17	30	13	144	146	142
20 - Jun	166	177	137	18	20	11	146	152	141
21 - Jun	145	159	132	19	20	12	165	178	153
22 - Jun	144	159	139	19	21	12	176	188	163
23 - Jun	130	137	126	20	22	15	168	177	159
24 - Jun	134	168	115	20	22	15	158	168	123
25 - Jun	132	140	123	21	22	16	154	166	143
26 - Jun	139	149	132	21	24	16	145	155	132
27 - Jun	110	151	84	21	23	17	143	169	126
28 - Jun	103	104	100	21	22	16	176	193	153
29 - Jun	90	101	84	20	22	14	161	177	147
30 - Jun	88	101	82	21	25	13	166	178	150

## Unit 4 Boiler Continuous Emission Monitoring Summary

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

- - Sox instrument out of service 1st - 2nd

	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 - Jun	184	208	148	11	21	6	0	0	0
2 - Jun	198	214	182	9	10	8	0	0	0
3 - Jun	176	201	152	7	11	5	223	234	217
4 - Jun	178	201	138	12	22	6	210	235	195
5 - Jun	189	208	153	8	17	4	193	242	102
6 - Jun	200	223	163	7	9	6	197	201	192
7 - Jun	208	252	162	10	12	5	202	227	187
8 - Jun	198	212	187	12	15	10	194	212	187
9 - Jun	188	211	139	15	17	12	208	229	189
10 - Jun	180	193	151	16	20	14	216	248	198
11 - Jun	192	210	171	17	20	15	218	253	203
12 - Jun	154	167	130	18	21	16	201	215	189
13 - Jun	171	191	160	18	20	16	192	204	180
14 - Jun	192	234	168	18	23	15	183	192	168
15 - Jun	160	175	143	18	21	16	210	229	186
16 - Jun	155	173	125	18	22	16	216	234	193
17 - Jun	151	169	136	17	20	16	219	244	192
18 - Jun	184	213	149	17	20	14	194	215	174
19 - Jun	168	175	160	19	23	16	164	212	126
20 - Jun	171	208	144	16	18	15	151	188	120
21 - Jun	120	131	108	17	19	14	198	211	177
22 - Jun	113	127	101	16	19	14	217	238	201
23 - Jun	126	160	101	17	20	16	205	211	200
24 - Jun	159	182	138	17	21	14	197	215	179
25 - Jun	166	186	140	21	23	18	190	206	179
26 - Jun	173	184	154	21	24	19	187	210	170
27 - Jun	160	193	134	18	21	16	180	245	159
28 - Jun	140	154	129	19	22	17	220	251	198
29 - Jun	151	159	139	19	23	16	206	232	181
30 - Jun	166	193	127	20	24	18	202	230	181

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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

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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
<b>U1</b>	0.30	0.20	0.50
<b>U2</b>	0.90	0.30	1.20
<b>U3</b>	0.90	1.00	1.90
<b>U4</b>	0.30	0.20	0.50
<b>U5</b>	0.20	0.10	0.30
<b>U6</b>	0.70	0.20	0.90

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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
<b>E1</b>	0.60	0.20	0.80
<b>E2</b>	0.60	0.30	0.90
<b>E3</b>	0.20	0.20	0.40
<b>E4</b>	0.50	0.30	0.80
<b>E5</b>	0.30	0.20	0.50
<b>E6</b>	1.30	1.80	3.10

## 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	16.65					
010cm	15.81	8.66	34.00	97.60	7.62	2.25
050cm	15.73	8.71	34.10	90.80	7.08	
100cm	15.89	8.76	34.40	89.80	6.90	
150cm	16.00	8.77	35.00	91.20	7.04	
200cm	15.81	8.80	35.00	91.80	7.10	
Bottom	15.77	8.78	35.50	87.20	6.70	

## 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	15.88					
010cm	15.71	8.62	33.90	101.30	7.91	2.25
050cm	15.70	8.72	33.90	96.60	7.55	
100cm	15.69	8.78	34.00	96.20	7.56	
150cm	15.72	8.80	34.20	97.80	7.63	
200cm	15.89	8.81	34.40	98.00	7.63	
250cm	16.42	8.82	35.40	98.60	7.54	
300cm	16.53	8.82	35.30	101.10	7.69	
350cm	16.65	8.82	35.40	104.30	7.94	
400cm	16.66	8.83	35.50	102.40	7.81	
450cm	16.65	8.84	35.60	98.80	7.48	
500cm	16.64	8.83	35.70	91.70	6.95	
550cm	16.66	8.82	35.80	90.70	6.88	
600cm	16.79	8.81	36.00	90.40	6.82	
650cm	16.83	8.80	36.20	85.70	6.49	
700cm	16.92	8.81	36.40	82.00	6.13	
750cm	16.94	8.79	36.40	75.40	5.60	
Bottom	16.95	8.79	36.50	63.90	4.79	

## 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
Depth/Air	16.58					
010cm	16.39	8.53	35.60	94.60	7.11	2.75
050cm	16.39	8.58	36.00	92.60	7.13	
100cm	16.40	8.62	36.10	93.70	7.11	
150cm	16.39	8.67	36.10	93.80	7.13	
200cm	16.40	8.71	36.10	92.80	7.01	
250cm	16.39	8.73	36.20	92.30	7.02	
300cm	16.39	8.75	36.20	94.40	7.12	
350cm	16.39	8.78	36.20	94.50	7.17	
400cm	16.39	8.79	36.20	92.00	7.04	
450cm	16.39	8.80	36.20	89.80	6.88	
500cm	16.39	8.82	36.20	90.70	6.92	
550cm	16.39	8.81	36.30	90.10	6.85	
600cm	16.38	8.84	36.20	89.50	6.81	
650cm	16.38	8.82	36.30	90.60	6.86	
700cm	16.39	8.82	36.30	89.10	6.79	
750cm	16.39	8.83	36.30	88.70	6.73	
800cm	16.45	8.82	36.40	87.60	6.66	
850cm	16.58	8.84	36.60	84.20	6.35	
900cm	16.60	8.83	36.60	83.20	6.29	
950cm	16.61	8.82	36.60	82.20	6.23	
Bottom	16.61	8.82	36.60	63.20	4.80	

## 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	16.81					
010cm	17.68	8.69	36.20	104.60	7.74	2.75
050cm	18.10	8.72	35.80	109.20	8.07	
100cm	18.14	8.75	35.90	113.20	8.37	
150cm	18.10	8.76	35.90	119.30	8.81	
200cm	18.09	8.77	35.90	125.40	9.25	
250cm	18.08	8.77	36.00	132.00	9.73	
300cm	18.05	8.77	36.00	136.20	10.06	
350cm	17.98	8.79	36.10	141.70	10.48	
400cm	17.87	8.79	36.10	146.40	10.83	
450cm	17.84	8.80	36.10	149.70	11.06	
500cm	17.81	8.79	36.30	154.70	11.45	
550cm	17.75	8.79	36.30	159.10	11.78	
Bottom	17.62	8.80	36.50	57.70	4.27	

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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	-	02/06/2016
Copper	19.0	ug/L	-	02/06/2016
Iron	5.0	ug/L	-	02/06/2016
Lead	0.20	ug/L	-	02/06/2016
Manganese	64	ug/L	-	02/06/2016
Nitrite and Nitrate as N	467	ug/L	-	02/06/2016
Phosphorus Reactive as P - Total	30	ug/L	-	02/06/2016
Phosphorus as P - Total	186	ug/L	-	02/06/2016
Selenium	28	ug/L	-	02/06/2016
Suspended Solids (SS)	6,000	ug/L	-	02/06/2016
Zinc	18.0	ug/L	-	02/06/2016
pH	8.6	-	-	02/06/2016

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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	-	02/06/2016
Iron	5.0	ug/L	-	02/06/2016
Selenium	2.00	ug/L	-	02/06/2016
Temperature - Average	15.9	deg C	-	Jun 2016
Temperature - Minimum	13.0	deg C	-	Jun 2016
Temperature - Maximum	17.6	deg C	-	Jun 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	02/06/2016
Iron	11.0	ug/L	300	02/06/2016
Selenium	1.00	ug/L	2	02/06/2016
Temperature - Average	23.0	deg C	35	Jun 2016
Temperature - Minimum	17.9	deg C	35	Jun 2016
Temperature - Maximum	25.6	deg C	35	Jun 2016
Maximum Daily Discharge from Ash Dam	40.1	ML	150	Jun 2016
Monthly Discharge from Ash Dam	423	ML	-	Jun 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	329	ug/L	-	02/06/2016
Phosphorus as P - Total	98	ug/L	-	02/06/2016
pH	6.8	-	-	02/06/2016