



## 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

January 2015



## Unit 1 Boiler Continuous Emission Monitoring Summary

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

- SO2 analyser out of service 1st - 7th due to instrument fault.

	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 - Jan	177	199	152	8	12	4	0	0	0
2 - Jan	190	212	159	8	12	5	0	0	0
3 - Jan	197	210	183	8	12	5	0	0	0
4 - Jan	195	219	171	8	13	4	0	0	0
5 - Jan	196	218	165	10	14	7	0	0	0
6 - Jan	173	191	153	9	15	6	0	0	0
7 - Jan	184	214	156	10	15	7	0	0	0
8 - Jan	196	232	162	9	17	4	186	216	172
9 - Jan	196	235	158	10	15	6	172	187	156
10 - Jan	188	228	139	8	14	6	163	175	154
11 - Jan	214	235	199	10	15	7	159	169	148
12 - Jan	199	248	139	11	17	5	167	186	148
13 - Jan	153	184	127	10	15	6	176	192	161
14 - Jan	137	160	107	7	13	5	186	200	175
15 - Jan	143	161	132	9	16	6	177	189	168
16 - Jan	130	148	115	8	14	6	173	195	160
17 - Jan	133	146	119	5	11	2	181	199	163
18 - Jan	135	154	119	5	11	3	164	174	156
19 - Jan	134	148	120	11	16	4	164	176	154
20 - Jan	127	135	121	8	14	4	170	186	155
21 - Jan	141	160	119	8	12	4	181	190	167
22 - Jan	144	167	123	7	13	4	183	198	170
23 - Jan	172	206	135	7	13	4	173	182	167
24 - Jan	140	158	120	6	10	3	163	175	154
25 - Jan	143	190	120	6	10	2	162	183	155
26 - Jan	136	155	124	9	15	4	163	176	149
27 - Jan	146	167	121	11	17	7	167	178	160
28 - Jan	141	154	127	11	15	6	163	171	154
29 - Jan	135	151	121	9	14	5	180	197	162
30 - Jan	139	161	116	9	15	4	188	203	159
31 - Jan	134	149	119	12	19	5	186	202	163

## 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 the 1st - 4th due to a tube leak.

	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 - Jan	0	0	0	0	0	0	0	0	0
2 - Jan	0	0	0	0	0	0	0	0	0
3 - Jan	0	0	0	0	0	0	0	0	0
4 - Jan	0	0	0	0	0	0	0	0	0
5 - Jan	119	129	113	10	35	4	169	190	154
6 - Jan	154	200	109	6	19	2	169	180	158
7 - Jan	147	181	125	4	8	2	163	187	135
8 - Jan	152	166	130	4	9	3	158	183	136
9 - Jan	158	188	128	4	7	1	172	194	160
10 - Jan	154	182	129	4	9	2	177	203	161
11 - Jan	139	162	123	4	6	3	165	169	151
12 - Jan	146	166	115	4	9	3	171	189	151
13 - Jan	133	178	106	4	7	2	176	196	154
14 - Jan	161	193	126	4	6	3	177	192	157
15 - Jan	170	190	136	3	5	2	178	190	165
16 - Jan	159	185	127	3	10	2	185	197	169
17 - Jan	172	210	140	4	6	2	188	207	170
18 - Jan	165	198	138	4	12	2	175	184	161
19 - Jan	153	197	120	4	8	2	167	178	153
20 - Jan	127	135	119	4	7	2	180	189	166
21 - Jan	143	169	117	4	9	3	189	199	169
22 - Jan	165	253	121	4	8	3	190	212	173
23 - Jan	134	164	107	4	9	3	183	206	173
24 - Jan	188	243	147	4	6	2	168	179	152
25 - Jan	177	206	156	4	11	2	165	174	146
26 - Jan	233	264	192	5	7	3	169	187	147
27 - Jan	227	302	166	5	8	2	175	186	164
28 - Jan	256	280	226	5	8	5	178	194	158
29 - Jan	237	259	204	5	8	4	188	204	158
30 - Jan	242	272	212	6	13	5	196	211	163
31 - Jan	260	291	222	7	12	3	199	215	179

## Unit 3 Boiler Continuous Emission Monitoring Summary

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

- Unit out of service for scheduled maintenance from 1st - 12th.

Nox and Sox instruments out of service on the 31st due to power board outage.

	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 - Jan	0	0	0	0	0	0	0	0	0
2 - Jan	0	0	0	0	0	0	0	0	0
3 - Jan	0	0	0	0	0	0	0	0	0
4 - Jan	0	0	0	0	0	0	0	0	0
5 - Jan	0	0	0	0	0	0	0	0	0
6 - Jan	0	0	0	0	0	0	0	0	0
7 - Jan	0	0	0	0	0	0	0	0	0
8 - Jan	0	0	0	0	0	0	0	0	0
9 - Jan	0	0	0	0	0	0	0	0	0
10 - Jan	0	0	0	0	0	0	0	0	0
11 - Jan	0	0	0	0	0	0	0	0	0
12 - Jan	0	0	0	0	0	0	0	0	0
13 - Jan	170	180	160	4	6	3	185	192	177
14 - Jan	163	195	144	4	6	4	182	196	155
15 - Jan	171	201	142	3	6	2	180	189	169
16 - Jan	163	185	147	3	4	2	175	193	167
17 - Jan	165	174	148	3	4	3	179	199	161
18 - Jan	166	178	148	3	3	3	164	171	159
19 - Jan	155	169	143	3	6	2	165	176	157
20 - Jan	172	190	150	4	6	4	177	189	166
21 - Jan	192	222	148	4	8	2	185	197	166
22 - Jan	189	240	148	4	6	2	185	197	177
23 - Jan	202	228	157	4	9	2	185	195	170
24 - Jan	182	221	157	3	7	2	166	178	160
25 - Jan	180	238	155	3	5	3	162	167	156
26 - Jan	159	176	149	4	4	3	167	181	156
27 - Jan	199	227	158	4	11	2	194	210	132
28 - Jan	225	261	206	3	5	2	204	227	192
29 - Jan	205	239	171	2	5	2	214	240	196
30 - Jan	221	250	195	3	4	2	231	306	174
31 - Jan	0	0	0	3	4	2	0	0	0

## Unit 4 Boiler Continuous Emission Monitoring Summary

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

- Nox and Sox instruments out of service on the 31st due to power board outage.

	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 - Jan	205	236	173	5	10	4	145	160	127
2 - Jan	202	221	180	5	9	4	146	153	140
3 - Jan	209	239	178	5	9	4	138	152	125
4 - Jan	143	167	133	5	9	3	141	154	135
5 - Jan	218	251	140	5	9	3	145	152	137
6 - Jan	195	225	172	5	9	4	128	135	110
7 - Jan	185	220	143	5	10	4	136	144	129
8 - Jan	195	212	176	5	10	4	145	163	129
9 - Jan	179	226	148	5	8	4	150	159	136
10 - Jan	150	185	103	4	8	3	143	163	130
11 - Jan	138	150	121	4	8	3	133	146	118
12 - Jan	186	232	134	5	10	3	141	161	113
13 - Jan	153	188	129	5	8	3	157	164	143
14 - Jan	163	180	139	4	8	3	163	177	147
15 - Jan	167	194	143	4	8	3	160	168	143
16 - Jan	142	175	121	4	7	3	156	171	143
17 - Jan	145	176	126	3	6	3	163	174	149
18 - Jan	152	172	131	4	7	3	153	159	149
19 - Jan	154	168	128	4	10	3	139	161	118
20 - Jan	160	176	129	4	9	3	142	155	124
21 - Jan	172	217	128	4	8	3	158	163	149
22 - Jan	203	245	155	4	9	3	156	164	148
23 - Jan	191	223	152	4	9	3	155	168	142
24 - Jan	189	224	160	4	8	3	144	146	139
25 - Jan	181	221	153	3	6	3	141	149	134
26 - Jan	187	204	160	4	7	3	133	140	120
27 - Jan	204	236	180	4	9	3	141	150	120
28 - Jan	209	223	190	4	8	3	143	154	116
29 - Jan	197	250	155	4	6	3	150	164	122
30 - Jan	204	228	162	4	8	3	143	157	131
31 - Jan	0	0	0	4	8	3	0	0	0

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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	0.0012	mg/m3	0.20	23/02/2014
Carbon Dioxide (Wet)	10.2	%	-	23/02/2014
Carbon Monoxide	2.9	mg/m3	-	23/02/2014
Chlorine	0.020	mg/m3	300	23/02/2014
Copper	0.0013	mg/m3	-	23/02/2014
Dry Gas Density	0.93	kg/m3	-	23/02/2014
Fluoride As HF - Total	6.4	mg/m3	50	23/02/2014
Hazardous Substances (Metals) - Total	0.07	mg/m3	1.00	23/02/2014
Hydrogen Chloride	3.1	mg/m3	100.0	23/02/2014
Mercury	0.0011	mg/m3	0.200	23/02/2014
Moisture	7.1	%	-	23/02/2014
Particulates - Total	7.3	mg/m3	50	23/02/2014
Stack Gas Molecular Weight	29	kg/k-mole	-	23/02/2014
Temperature	109.0	degC	-	23/02/2014
Velocity	11.8	m/sec	-	23/02/2014
Volatile Organic Compounds (VOC) - Total	4.7	mg/m3	-	23/02/2014
Volumetric Flow Rate (Dry At STP)	283	m3/sec	-	23/02/2014



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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	0.0009	mg/m3	0.20	24/08/2014
Carbon Dioxide (Wet)	7.7	%	-	24/08/2014
Carbon Monoxide	0.90	mg/m3	-	06/05/2013
Chlorine	1.8	mg/m3	300	24/08/2014
Copper	0.0009	mg/m3	-	24/08/2014
Dry Gas Density	1.4	kg/m3	-	24/08/2014
Fluoride As HF - Total	7.0	mg/m3	50	24/08/2014
Hazardous Substances (Metals) - Total	0.014	mg/m3	1.00	24/08/2014
Hydrogen Chloride	1.8	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	13.0	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	0.08	mg/m3	-	24/08/2014
Volumetric Flow Rate (Dry At STP)	255	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	0.0011	mg/m3	0.20	05/08/2013
Carbon Dioxide (Wet)	10.3	%	-	05/08/2013
Carbon Monoxide	9.9	mg/m3	-	05/08/2013
Chlorine	0.30	mg/m3	200	05/08/2013
Copper	0.0011	mg/m3	-	05/08/2013
Dry Gas Density	0.94	kg/m3	-	05/08/2013
Fluoride As HF - Total	9.6	mg/m3	50	05/08/2013
Hazardous Substances (Metals) - Total	0.06	mg/m3	1.00	05/08/2013
Hydrogen Chloride	4.1	mg/m3	100.0	05/08/2013
Mercury	0.0007	mg/m3	0.200	05/08/2013
Moisture	6.7	%	-	05/08/2013
Particulates - Total	15.0	mg/m3	50	05/08/2013
Stack Gas Molecular Weight	29	kg/k-mole	-	05/08/2013
Temperature	103.0	degC	-	05/08/2013
Velocity	11.1	m/sec	-	05/08/2013
Volatile Organic Compounds (VOC) - Total	5.7	mg/m3	-	05/08/2013
Volumetric Flow Rate (Dry At STP)	270	m3/sec	-	05/08/2013



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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	0.0010	mg/m3	0.20	13/10/2013
Carbon Dioxide (Wet)	9.4	%	-	13/10/2013
Carbon Monoxide	9.3	mg/m3	-	13/10/2013
Chlorine	0.040	mg/m3	200	13/10/2013
Copper	0.0010	mg/m3	-	13/10/2013
Dry Gas Density	0.94	kg/m3	-	13/10/2013
Fluoride As HF - Total	7.5	mg/m3	50	13/10/2013
Hazardous Substances (Metals) - Total	0.027	mg/m3	1.00	13/10/2013
Hydrogen Chloride	2.8	mg/m3	100.0	13/10/2013
Mercury	0.0022	mg/m3	0.200	13/10/2013
Moisture	6.5	%	-	13/10/2013
Particulates - Total	7.9	mg/m3	50	13/10/2013
Stack Gas Molecular Weight	29	kg/k-mole	-	13/10/2013
Temperature	104.0	degC	-	13/10/2013
Velocity	15.4	m/sec	-	13/10/2013
Volatile Organic Compounds (VOC) - Total	4.7	mg/m3	-	13/10/2013
Volumetric Flow Rate (Dry At STP)	375	m3/sec	-	13/10/2013

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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>	0.40	0.50	0.90
<b>U2</b>	0.50	0.20	0.70
<b>U3</b>	0.40	0.40	0.80
<b>U4</b>	0.60	0.40	1.00
<b>U5</b>	0.50	0.40	0.90
<b>U6</b>	0.50	0.30	0.80

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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>	0.50	0.30	0.80
<b>E2</b>	0.40	0.30	0.70
<b>E3</b>	0.70	0.50	1.20
<b>E4</b>	0.40	0.20	0.60
<b>E5</b>	0.70	0.40	1.10
<b>E6</b>	0.40	0.40	0.80

## 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	24.10					
010cm	27.37	8.20	35.50	114.30	7.23	1.13
050cm	27.44	8.16	35.40	118.70	7.51	
100cm	27.46	8.20	35.50	123.10	7.78	
150cm	27.47	8.15	35.50	128.30	8.11	
200cm	27.45	8.17	35.60	132.00	8.33	
250cm	27.45	8.19	35.60	136.00	8.59	
Bottom	27.45	8.21	36.20	91.00	5.72	

## 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	23.42					
010cm	26.95	8.26	36.30	97.30	6.16	1.25
050cm	27.06	8.25	36.20	97.90	6.20	
100cm	27.14	8.27	36.20	100.00	6.38	
150cm	27.17	8.27	36.20	100.70	6.36	
200cm	27.19	8.26	36.30	100.30	6.33	
250cm	27.22	8.27	36.30	100.60	6.35	
300cm	27.20	8.28	36.30	96.50	6.09	
350cm	27.21	8.28	36.40	91.40	5.75	
400cm	27.25	8.29	36.40	93.10	5.83	
450cm	27.27	8.28	36.50	92.90	5.87	
500cm	27.29	8.28	36.50	86.80	5.55	
550cm	27.30	8.29	36.60	88.40	5.52	
600cm	27.33	8.28	36.60	90.70	5.69	
650cm	27.33	8.29	36.60	90.50	5.64	
700cm	27.34	8.28	36.70	89.30	5.56	
750cm	27.29	8.28	36.70	83.90	5.27	
Bottom	27.27	8.28	36.70	84.20	5.26	

## 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	22.65					
010cm	25.32	8.42	35.40	111.70	7.37	1.25
050cm	25.42	8.41	35.50	115.10	7.51	
100cm	25.46	8.49	35.60	122.10	7.96	
150cm	25.46	8.38	35.60	126.90	8.29	
200cm	25.47	8.37	35.60	132.50	8.61	
250cm	25.47	8.36	35.70	136.30	8.81	
300cm	25.47	8.37	35.70	139.90	9.14	
350cm	25.46	8.39	35.70	142.80	9.30	
400cm	25.46	8.40	35.80	146.20	9.53	
450cm	25.47	8.39	35.90	150.00	9.77	
500cm	25.43	8.40	35.90	152.60	9.99	
550cm	25.47	8.40	35.90	155.60	10.13	
600cm	25.44	8.41	35.90	160.50	10.45	
650cm	25.43	8.41	35.90	162.30	10.55	
700cm	25.41	8.39	36.00	164.80	10.72	
750cm	25.35	8.40	36.00	168.30	10.96	
800cm	25.22	8.37	36.10	172.20	11.22	
850cm	23.94	8.39	36.00	182.00	12.17	
900cm	23.69	8.39	36.10	182.60	12.22	
950cm	23.65	8.39	36.10	181.60	12.15	
Bottom	23.59	8.35	36.40	186.30	12.43	

## 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	23.25					
010cm	28.65	8.20	36.10	109.90	6.77	0.75
050cm	28.83	8.16	36.40	114.80	7.06	
100cm	28.86	8.17	36.50	119.10	7.29	
150cm	28.91	8.14	36.50	123.90	7.62	
200cm	28.92	8.13	36.50	128.70	7.90	
250cm	28.96	8.17	36.50	133.70	8.20	
300cm	28.96	8.19	36.50	135.50	8.31	
350cm	28.98	8.15	36.50	135.00	8.28	
400cm	28.96	8.16	36.50	136.60	8.30	
450cm	28.97	8.16	36.50	139.10	8.53	
500cm	28.96	8.20	36.50	139.30	8.57	
Bottom	28.96	8.18	36.50	137.60	8.44	

## 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	-	07/01/2015
Copper	0.50	ug/L	-	07/01/2015
Iron	10.0	ug/L	-	07/01/2015
Lead	0.20	ug/L	-	07/01/2015
Manganese	5.8	ug/L	-	07/01/2015
Nitrite and Nitrate as N	39	ug/L	-	07/01/2015
Phosphorus Reactive as P - Total	65	ug/L	-	07/01/2015
Phosphorus as P - Total	115	ug/L	-	07/01/2015
Selenium	41	ug/L	-	07/01/2015
Suspended Solids (SS)	8.0	mg/L	-	07/01/2015
Zinc	5.0	ug/L	-	07/01/2015
pH	9.3		-	07/01/2015

## 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	2.00	ug/L	-	07/01/2015
Iron	16.0	ug/L	-	07/01/2015
Selenium	1.00	ug/L	-	07/01/2015
Temperature - Average	27.5	deg C	-	Jan 2015
Temperature - Minimum	23.5	deg C	-	Jan 2015
Temperature - Maximum	29.7	deg C	-	Jan 2015

## Eraring Cooling Water Outlet Canal

*EPA Identification no. 1 - Cooling water outlet canal to Myuna Bay*

- The 98.5% limit specified for temperature in the outlet canal means during normal electricity supply conditions, cooling water may be discharged over 35 degC but up to a max temperature of 37.5 degC for up to 131 hrs over the reporting period.

<u>Name</u>	<u>Reading</u>	<u>Units</u>	<u>Licence Limit</u>	<u>Date</u>
Copper	2.00	ug/L	5	07/01/2015
Iron	14.0	ug/L	300	07/01/2015
Selenium	1.00	ug/L	2	07/01/2015
Temperature - Average	32.6	deg C	35	Jan 2015
Temperature - Minimum	28.5	deg C	35	Jan 2015
Temperature - Maximum	36.7	deg C	35	Jan 2015
Maximum Daily Discharge from Ash Dam	17.8	ML	150000	Jan 2015
Monthly Discharge from Ash Dam	180	ML	-	Jan 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>
Cadmium	0.20	ug/L	-	07/01/2015
Copper	20.0	ug/L	-	07/01/2015
Iron	5,080	ug/L	-	07/01/2015
Lead	1.2	ug/L	-	07/01/2015
Manganese	1,540	ug/L	-	07/01/2015
Nitrite and Nitrate as N	58	ug/L	-	07/01/2015
Phosphorus as P - Total	102	ug/L	-	07/01/2015
Selenium	1.00	ug/L	-	07/01/2015
Zinc	23.0	ug/L	-	07/01/2015
pH	6.9		-	07/01/2015