



## 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 2014



## 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 - Sep	213	244	179	15	25	11	163	176	156
2 - Sep	199	232	167	15	20	8	170	177	163
3 - Sep	198	219	176	15	20	12	178	193	170
4 - Sep	196	227	168	15	20	12	183	215	169
5 - Sep	193	226	165	17	22	12	188	209	166
6 - Sep	193	219	172	18	24	13	175	200	163
7 - Sep	190	230	166	17	22	11	173	205	157
8 - Sep	192	223	159	16	28	10	168	193	141
9 - Sep	180	206	150	14	26	7	178	197	168
10 - Sep	187	213	158	13	18	8	179	200	165
11 - Sep	184	207	156	15	21	11	192	206	175
12 - Sep	188	209	176	18	21	15	187	197	177
13 - Sep	199	214	179	18	23	14	173	183	166
14 - Sep	199	223	177	18	26	11	173	181	164
15 - Sep	203	226	171	18	23	14	168	178	164
16 - Sep	198	242	176	16	22	11	173	183	162
17 - Sep	194	220	169	18	26	11	178	183	171
18 - Sep	199	246	168	15	26	7	175	192	166
19 - Sep	184	211	164	17	26	12	178	183	161
20 - Sep	184	201	167	17	27	9	165	172	161
21 - Sep	178	198	165	16	22	10	163	175	157
22 - Sep	189	235	162	16	26	10	164	174	152
23 - Sep	173	189	157	14	28	8	175	183	166
24 - Sep	164	191	147	13	25	7	183	190	174
25 - Sep	168	206	153	11	16	6	173	179	169
26 - Sep	169	181	156	12	18	8	175	184	167
27 - Sep	165	185	153	10	17	6	169	175	163
28 - Sep	170	180	158	8	11	6	164	180	154
29 - Sep	176	197	165	6	10	4	165	176	157
30 - Sep	178	192	168	5	9	5	162	170	157

## Unit 2 Boiler Continuous Emission Monitoring Summary

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

- No data available, instrument failure.

	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	0	0	0	0	0	0	0	0	0
2 - Sep	158	195	121	17	24	12	184	203	164
3 - Sep	179	198	158	18	21	16	190	203	179
4 - Sep	167	179	156	18	20	16	198	232	188
5 - Sep	144	173	122	17	19	13	214	244	197
6 - Sep	140	161	125	17	20	15	187	205	165
7 - Sep	145	168	110	16	19	12	184	198	173
8 - Sep	152	178	126	16	20	12	189	201	176
9 - Sep	140	171	115	15	19	11	193	216	178
10 - Sep	110	134	101	12	17	10	201	221	189
11 - Sep	106	126	93	11	14	10	216	223	202
12 - Sep	109	119	101	12	14	11	201	208	192
13 - Sep	129	191	108	14	20	10	192	205	184
14 - Sep	185	200	160	18	21	14	187	195	180
15 - Sep	199	225	172	18	22	16	186	189	181
16 - Sep	134	193	104	12	18	10	187	191	180
17 - Sep	116	139	111	11	16	10	195	202	188
18 - Sep	134	155	115	16	19	13	197	204	184
19 - Sep	151	195	123	17	20	13	203	208	196
20 - Sep	134	142	124	15	19	12	188	200	180
21 - Sep	136	149	114	13	17	11	181	184	175
22 - Sep	139	153	128	14	18	12	182	193	170
23 - Sep	140	159	127	14	17	11	194	206	186
24 - Sep	129	146	116	14	17	12	198	202	189
25 - Sep	135	162	120	14	17	11	191	196	183
26 - Sep	130	142	122	14	18	12	191	196	187
27 - Sep	155	173	124	12	15	11	187	197	183
28 - Sep	170	175	163	11	14	10	189	196	183
29 - Sep	159	179	114	11	14	10	193	200	182
30 - Sep	127	173	113	11	14	10	185	191	177

## Unit 3 Boiler Continuous Emission Monitoring Summary

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

- - 10th - 14th Unit out of service due to 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 - Sep	228	258	177	9	15	5	172	189	159
2 - Sep	210	242	173	7	18	3	184	200	168
3 - Sep	228	249	208	6	9	4	187	198	171
4 - Sep	206	237	165	7	11	3	192	217	171
5 - Sep	213	225	194	7	10	3	198	219	183
6 - Sep	208	232	165	6	10	4	179	201	166
7 - Sep	206	241	157	5	9	3	180	198	168
8 - Sep	216	233	178	5	9	3	173	196	158
9 - Sep	197	226	159	4	9	2	183	203	165
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	166	182	148	3	6	3	199	207	191
16 - Sep	220	274	171	4	7	3	190	204	184
17 - Sep	212	242	173	4	8	2	190	201	167
18 - Sep	186	203	150	5	7	3	188	195	175
19 - Sep	212	249	179	6	10	3	189	195	169
20 - Sep	183	200	173	5	7	2	181	187	163
21 - Sep	204	261	178	4	7	2	180	186	166
22 - Sep	220	262	188	4	7	3	180	196	154
23 - Sep	200	224	176	4	8	2	191	202	172
24 - Sep	197	211	176	4	7	3	198	206	180
25 - Sep	201	233	173	3	7	2	189	196	177
26 - Sep	209	236	191	4	10	2	189	196	172
27 - Sep	185	204	167	3	7	2	189	199	169
28 - Sep	206	212	194	4	8	3	181	188	171
29 - Sep	203	218	186	4	6	3	185	189	174
30 - Sep	192	228	174	4	4	3	177	181	161

## 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% 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	238	294	178	10	13	8	160	178	148
2 - Sep	189	246	159	9	12	9	174	188	160
3 - Sep	212	251	173	10	12	9	186	205	157
4 - Sep	218	268	167	10	13	10	184	194	170
5 - Sep	198	219	160	11	14	10	191	209	165
6 - Sep	181	217	151	9	12	6	177	197	162
7 - Sep	188	240	136	7	10	6	154	177	125
8 - Sep	189	209	163	7	10	6	164	178	137
9 - Sep	158	179	141	7	10	5	179	188	167
10 - Sep	175	216	128	7	10	6	179	190	174
11 - Sep	189	216	172	7	10	6	190	206	170
12 - Sep	190	206	175	7	11	7	182	191	172
13 - Sep	193	220	161	7	11	6	165	175	152
14 - Sep	214	235	186	7	11	6	167	185	145
15 - Sep	221	248	190	7	10	6	162	168	141
16 - Sep	202	225	166	7	11	5	164	176	153
17 - Sep	197	226	179	6	10	5	167	180	153
18 - Sep	194	231	174	7	10	6	166	172	159
19 - Sep	150	191	131	7	10	6	168	178	136
20 - Sep	151	165	136	8	11	6	160	170	133
21 - Sep	152	165	141	8	11	6	156	163	143
22 - Sep	166	199	139	7	10	6	157	169	139
23 - Sep	145	151	136	7	9	5	163	174	154
24 - Sep	147	170	125	7	10	5	173	186	162
25 - Sep	150	173	137	6	10	5	161	172	147
26 - Sep	155	171	146	7	15	5	170	183	156
27 - Sep	143	153	116	6	9	5	153	166	139
28 - Sep	148	162	121	7	10	5	151	159	142
29 - Sep	154	172	126	6	10	5	153	160	141
30 - Sep	145	158	127	5	9	4	148	151	141

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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*

- Result of 18.7 appears to be abnormally high; figure is currently being investigated by contractors, possible contamination.

	Deposited Matter		
	g/m2/month		
	Ash	Combustible	Insolubles
<b>U1</b>	1.30	0.10	1.30
<b>U2</b>	0.50	0.20	0.70
<b>U3</b>	0.20	0.20	0.40
<b>U4</b>	4.00	1.30	5.30
<b>U5</b>	0.80	0.50	1.30
<b>U6</b>	15.70	3.00	18.70

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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>	0.10	0.30	0.40
<b>E2</b>	0.20	0.60	0.80
<b>E3</b>	0.70	0.60	1.30
<b>E4</b>	0.60	0.60	1.20
<b>E5</b>	0.40	0.30	0.70
<b>E6</b>	0.70	0.90	1.60

## 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>010cm</b>	15.72	7.98	34.92	98.00	7.84	2.50
<b>050cm</b>	15.75	7.98	34.92	98.10	7.85	
<b>100cm</b>	15.74	7.98	34.92	98.10	7.85	
<b>150cm</b>	15.74	7.98	34.92	98.10	7.84	
<b>200cm</b>	15.71	7.98	34.93	98.30	7.87	
<b>250cm</b>	15.69	7.99	34.94	98.40	7.88	
<b>300cm</b>	15.67	7.99	34.93	98.60	7.90	
<b>Bottom</b>	15.67	7.99	34.94	98.80	7.91	

## 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>010cm</b>	15.38	7.98	34.86	98.40	7.93	2.50
<b>050cm</b>	15.37	7.98	34.85	98.30	7.92	
<b>100cm</b>	15.38	7.99	34.86	98.20	7.92	
<b>150cm</b>	15.40	7.96	34.86	98.30	7.92	
<b>200cm</b>	15.42	7.99	34.88	98.20	7.91	
<b>250cm</b>	15.42	7.99	34.88	98.20	7.90	
<b>300cm</b>	15.42	7.99	34.87	98.10	7.91	
<b>350cm</b>	15.44	7.99	34.85	98.40	7.92	
<b>400cm</b>	15.53	7.99	34.89	98.20	7.89	
<b>450cm</b>	15.43	7.99	34.88	98.20	7.91	
<b>500cm</b>	15.46	7.99	34.89	98.10	7.89	
<b>550cm</b>	15.42	7.99	34.88	97.90	7.88	
<b>600cm</b>	15.37	7.99	34.91	98.30	7.92	
<b>650cm</b>	15.38	7.99	34.91	98.30	7.92	
<b>Bottom</b>	15.22	7.99	34.87	98.10	7.93	

## 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>010cm</b>	15.37	7.92	34.78	99.10	7.99	3.00
<b>050cm</b>	15.38	7.93	34.79	99.00	7.98	
<b>100cm</b>	15.39	7.93	34.80	99.00	7.98	
<b>150cm</b>	15.39	7.94	34.81	98.90	7.98	
<b>200cm</b>	15.39	7.94	34.80	99.00	7.98	
<b>250cm</b>	15.39	7.94	34.80	99.00	7.98	
<b>300cm</b>	15.39	7.95	34.81	98.90	7.97	
<b>350cm</b>	15.39	7.95	34.81	98.90	7.97	
<b>400cm</b>	15.39	7.95	34.81	99.00	7.98	
<b>450cm</b>	15.39	7.96	34.80	99.10	7.99	
<b>500cm</b>	15.38	7.96	34.82	99.10	7.99	
<b>550cm</b>	15.39	7.96	34.82	99.10	7.99	
<b>600cm</b>	15.38	7.96	34.81	99.10	7.99	
<b>650cm</b>	15.38	7.96	34.81	98.90	7.97	
<b>700cm</b>	15.38	7.97	34.82	98.80	7.97	
<b>750cm</b>	15.37	7.98	34.82	98.80	7.97	
<b>800cm</b>	15.36	7.97	34.83	98.60	7.95	
<b>Bottom</b>	15.36	7.97	34.83	98.60	7.95	

## 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>010cm</b>	19.41	7.95	34.98	110.40	8.23	2.50
<b>050cm</b>	19.43	7.95	34.98	110.30	8.22	
<b>100cm</b>	19.44	7.94	34.97	110.50	8.24	
<b>150cm</b>	19.45	7.95	34.96	110.50	8.23	
<b>200cm</b>	19.46	7.94	34.98	110.50	8.23	
<b>250cm</b>	19.46	7.94	34.99	110.50	8.23	
<b>300cm</b>	19.44	7.94	34.98	110.50	8.24	
<b>350cm</b>	19.45	7.94	34.98	110.40	8.23	
<b>400cm</b>	19.38	7.95	34.97	110.40	8.24	
<b>450cm</b>	19.38	7.94	35.01	110.50	8.24	
<b>500cm</b>	19.31	7.95	34.96	110.40	8.25	
<b>550cm</b>	19.30	8.00	35.00	110.20	8.20	
<b>Bottom</b>	19.30	8.00	35.00	110.20	8.20	

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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>
Nitrite and Nitrate as N	333	ug/L	-	02/09/2014
Phosphorus Reactive as P - Total	103	ug/L	-	02/09/2014
Phosphorus as P - Total	162	ug/L	-	02/09/2014
Selenium	39	ug/L	-	02/09/2014
Suspended Solids (SS)	18.0	mg/L	-	02/09/2014
pH	9.4		-	02/09/2014

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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>
Temperature - Average	18.3	deg C	-	Sep 2014
Temperature - Minimum	14.5	deg C	-	Sep 2014
Temperature - Maximum	21.4	deg C	-	Sep 2014

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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>
Temperature - Average	26.0	deg C	35	Sep 2014
Temperature - Minimum	20.6	deg C	35	Sep 2014
Temperature - Maximum	30.4	deg C	35	Sep 2014
Maximum Daily Discharge from Ash Dam	51.2	ML	150000	Sep 2014
Monthly Discharge from Ash Dam	247	ML	-	Sep 2014

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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	80	ug/L	-	02/09/2014
Phosphorus as P - Total	228	ug/L	-	02/09/2014
pH	6.9		-	02/09/2014