



## Eraring Power Station - EPA Licence 1429

Rocky Point Rd, Morriset NSW 2264

## Coal Unloader - EPA Licence 4297

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

## Environmental Monitoring Data

March 2015



## Unit 1 Boiler Continuous Emission Monitoring Summary

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

- 14th - 17th Nox and SOx instrument error due to lightning strike.
- 21st - 30th 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	159	125	8	11	5	162	178	155
2 - Mar	154	168	128	9	12	9	200	232	170
3 - Mar	154	182	131	9	12	8	191	233	177
4 - Mar	160	172	151	9	12	8	195	217	170
5 - Mar	157	165	149	8	11	6	182	197	170
6 - Mar	160	166	154	9	21	7	198	225	188
7 - Mar	168	195	148	9	12	8	193	226	166
8 - Mar	189	203	179	9	13	8	168	178	160
9 - Mar	188	212	177	9	12	8	178	195	161
10 - Mar	179	205	162	10	11	8	188	194	179
11 - Mar	174	193	163	9	12	8	183	194	174
12 - Mar	185	225	162	9	12	8	195	207	181
13 - Mar	212	225	199	10	14	9	210	233	193
14 - Mar	0	0	0	10	13	9	0	0	0
15 - Mar	0	0	0	11	13	10	0	0	0
16 - Mar	0	0	0	11	14	9	0	0	0
17 - Mar	0	0	0	10	13	8	0	0	0
18 - Mar	124	137	107	8	12	6	185	189	182
19 - Mar	118	135	101	8	11	7	196	208	182
20 - Mar	106	115	100	9	16	6	203	214	186
21 - Mar	0	0	0	0	0	0	0	0	0
22 - Mar	0	0	0	0	0	0	0	0	0
23 - Mar	0	0	0	0	0	0	0	0	0
24 - Mar	0	0	0	0	0	0	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									

## Unit 2 Boiler Continuous Emission Monitoring Summary

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

- 14th - 17th Nox and SOx instrument error due to lightning strike.

	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	183	215	157	6	9	4	186	193	170
2 - Mar	171	199	142	6	8	5	198	225	169
3 - Mar	191	219	156	6	10	5	205	227	192
4 - Mar	188	218	140	6	8	4	205	223	182
5 - Mar	140	156	120	6	10	4	208	233	181
6 - Mar	149	163	138	6	8	4	212	231	187
7 - Mar	150	166	134	7	10	5	221	252	185
8 - Mar	154	176	140	7	10	5	200	208	182
9 - Mar	151	176	117	6	8	5	195	211	181
10 - Mar	129	146	108	5	8	4	234	280	193
11 - Mar	166	215	116	6	9	5	209	236	191
12 - Mar	152	213	120	7	10	5	219	248	199
13 - Mar	227	234	211	8	10	6	235	243	227
14 - Mar	0	0	0	8	10	6	0	0	0
15 - Mar	0	0	0	8	12	7	0	0	0
16 - Mar	0	0	0	7	9	4	0	0	0
17 - Mar	0	0	0	9	12	7	0	0	0
18 - Mar	138	169	119	7	10	4	220	242	204
19 - Mar	149	184	118	7	10	5	227	248	210
20 - Mar	151	214	117	6	10	3	230	255	216
21 - Mar	172	203	125	7	10	5	234	265	208
22 - Mar	177	211	152	7	11	4	209	261	182
23 - Mar	156	182	116	6	10	4	201	235	184
24 - Mar	158	213	112	6	7	4	221	247	204
25 - Mar	153	196	120	6	9	4	210	248	189
26 - Mar	147	187	120	8	12	6	230	251	205
27 - Mar	198	228	176	8	11	5	247	268	222
28 - Mar	181	227	149	9	11	8	193	214	176
29 - Mar	156	208	128	8	12	5	219	269	187
30 - Mar	155	198	120	7	11	4	208	230	191
31 - Mar									

## Unit 3 Boiler Continuous Emission Monitoring Summary

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

- 17th Nox and SOx instrument error due to lightning strike.

	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	159	194	137	4	6	3	180	198	168
2 - Mar	182	237	141	4	6	4	220	251	181
3 - Mar	177	190	149	3	5	3	211	248	191
4 - Mar	178	204	160	3	4	2	204	225	187
5 - Mar	170	191	130	3	4	2	201	213	188
6 - Mar	146	164	127	3	5	3	210	250	195
7 - Mar	151	168	130	4	4	4	210	247	173
8 - Mar	151	180	127	3	4	3	190	205	172
9 - Mar	166	218	128	3	4	3	182	193	172
10 - Mar	151	172	117	4	6	3	215	234	188
11 - Mar	171	215	112	4	6	2	200	229	189
12 - Mar	161	195	129	3	4	2	216	237	204
13 - Mar	156	203	123	3	5	3	220	248	197
14 - Mar	149	169	117	4	4	4	195	212	181
15 - Mar	164	205	135	3	5	3	184	191	178
16 - Mar	174	213	131	3	3	3	223	285	179
17 - Mar	206	221	180	4	4	4	0	0	0
18 - Mar	168	184	156	5	5	4	190	201	184
19 - Mar	152	209	128	4	5	3	196	202	189
20 - Mar	156	181	118	3	7	2	209	224	195
21 - Mar	145	166	123	4	4	4	188	209	170
22 - Mar	148	165	120	4	5	3	180	209	162
23 - Mar	144	179	126	3	5	3	181	201	162
24 - Mar	162	194	110	4	6	2	209	229	186
25 - Mar	151	173	112	3	5	2	202	223	174
26 - Mar	154	184	142	4	5	3	214	241	176
27 - Mar	160	181	149	3	5	3	222	252	193
28 - Mar	165	190	144	3	3	3	180	199	169
29 - Mar	167	181	147	3	4	2	191	236	170
30 - Mar	181	221	139	5	9	2	193	233	171
31 - Mar									

## Unit 4 Boiler Continuous Emission Monitoring Summary

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

- 12th - 19th Nox and SOx instrument error due to lightning strike.
- 21st - 22nd 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	143	173	116	4	7	2	145	158	135
2 - Mar	161	179	134	5	10	2	166	189	141
3 - Mar	197	242	157	6	11	4	179	192	163
4 - Mar	184	218	153	7	13	3	172	189	159
5 - Mar	158	184	143	3	7	3	164	188	151
6 - Mar	139	149	126	3	6	3	167	190	148
7 - Mar	145	165	125	4	7	3	169	186	151
8 - Mar	137	158	121	3	8	2	148	158	141
9 - Mar	148	171	121	4	10	3	153	165	141
10 - Mar	142	155	119	4	7	3	179	201	163
11 - Mar	169	217	125	4	10	2	175	180	171
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	4	6	3	0	0	0
15 - Mar	0	0	0	3	6	3	0	0	0
16 - Mar	0	0	0	5	7	4	0	0	0
17 - Mar	140	161	125	3	6	3	0	0	0
18 - Mar	144	199	111	4	5	2	0	0	0
19 - Mar	145	183	129	3	6	2	0	0	0
20 - Mar	167	210	138	5	12	2	181	194	151
21 - Mar	0	0	0	0	0	0	0	0	0
22 - Mar	0	0	0	0	0	0	0	0	0
23 - Mar	200	226	178	4	5	3	180	194	166
24 - Mar	186	226	126	4	9	3	193	217	164
25 - Mar	144	168	127	4	7	2	183	201	144
26 - Mar	139	157	121	3	7	2	196	215	163
27 - Mar	174	200	141	4	7	2	202	214	188
28 - Mar	198	220	179	3	7	2	164	184	138
29 - Mar	192	237	155	3	8	2	184	207	149
30 - Mar	196	227	155	3	8	3	179	213	158
31 - Mar									

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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



## Unit 2 Boiler Emission Test Results

*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	0.00002	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

## Unit 3 Boiler Emission Test Results

*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



## Unit 4 Boiler Emission Test Results

*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
<b>U1</b>	0.40	0.40	0.80
<b>U2</b>	2.50	0.50	3.00
<b>U3</b>	0.60	0.30	0.90
<b>U4</b>	0.70	0.30	1.00
<b>U5</b>	0.40	0.20	0.60
<b>U6</b>	0.30	0.30	0.60

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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	0.40	0.90
<b>E2</b>	0.40	0.40	0.80
<b>E3</b>	0.90	0.80	1.70
<b>E4</b>	0.50	0.70	1.20
<b>E5</b>	0.40	0.40	0.80
<b>E6</b>	0.30	0.40	0.70

## 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	26.25					
010cm	26.23	8.14	36.00	122.60	7.88	2.25
050cm	26.20	8.16	36.00	124.60	8.01	
100cm	26.16	8.16	36.10	126.40	8.12	
150cm	26.08	8.14	36.10	87.40	5.62	
200cm	26.00	8.14	36.10	82.40	5.30	
250cm	25.98	8.15	36.10	80.60	5.21	
300cm	25.97	8.15	36.10	73.10	4.70	
Bottom	25.96	8.15	36.10	72.90	4.73	

## 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	26.32					
010cm	26.02	8.14	35.90	110.00	7.09	3.25
050cm	26.05	8.15	35.90	113.00	7.30	
100cm	26.92	8.16	36.00	116.00	7.50	
150cm	25.82	8.15	36.00	119.00	7.69	
200cm	25.80	8.15	36.00	119.10	7.70	
250cm	25.77	8.14	36.00	120.20	7.81	
300cm	25.76	8.15	36.00	119.20	7.72	
350cm	25.73	8.15	36.10	113.20	7.32	
400cm	25.71	8.15	36.10	114.70	7.44	
450cm	25.69	8.15	36.10	118.50	7.66	
500cm	25.69	8.15	36.10	114.00	7.37	
550cm	25.67	8.15	36.10	115.50	7.47	
600cm	25.67	8.15	36.10	108.00	6.99	
650cm	25.66	8.15	36.10	101.30	6.52	
700cm	25.65	8.13	36.20	81.40	5.22	
Bottom	25.65	8.13	36.20	95.10	6.33	

## 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	22.44					
010cm	24.06	8.18	36.30	97.10	6.46	3.75
050cm	24.17	8.18	36.30	91.10	5.88	
100cm	24.18	8.17	36.30	92.40	6.23	
150cm	24.20	8.17	36.30	90.10	6.03	
200cm	24.25	8.17	36.30	92.30	6.00	
250cm	24.26	8.18	36.30	93.60	6.20	
300cm	24.27	8.18	36.30	90.50	6.02	
350cm	24.28	8.18	36.30	93.50	6.22	
400cm	24.29	8.17	36.30	94.10	6.17	
450cm	24.29	8.18	36.30	95.10	6.23	
500cm	24.29	8.17	36.30	91.60	6.04	
550cm	24.29	8.18	36.30	94.90	6.26	
600cm	24.28	8.18	36.30	90.50	6.07	
650cm	24.21	8.17	36.30	91.30	6.08	
700cm	24.18	8.17	36.30	89.30	5.97	
750cm	24.16	8.18	36.30	92.00	6.08	
800cm	24.14	8.17	36.40	85.10	5.60	
850cm	23.88	8.19	36.40	90.50	6.01	
900cm	23.71	8.20	36.50	93.90	6.27	
950cm	23.62	8.19	36.50	94.90	6.39	
Bottom	23.60	8.19	36.50	77.80	5.13	

## 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	24.33					
010cm	27.75	8.10	36.20	93.80	5.97	2.25
050cm	27.94	8.10	36.00	93.30	5.76	
100cm	27.94	8.11	36.00	90.30	5.76	
150cm	27.97	8.11	35.90	100.30	6.23	
200cm	28.01	8.11	35.90	103.10	6.45	
250cm	28.00	8.11	36.00	102.30	6.42	
300cm	27.99	8.11	35.90	103.80	6.60	
350cm	28.02	8.12	35.90	103.10	6.40	
400cm	27.95	8.12	36.00	95.60	6.01	
450cm	27.04	8.12	36.00	90.00	5.63	
500cm	26.25	8.11	36.00	72.80	4.71	
550cm	26.12	8.12	36.00	81.40	5.27	
Bottom	25.87	8.12	36.10	72.00	4.62	

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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	-	02/03/2015
Copper	1.00	ug/L	-	02/03/2015
Iron	5.0	ug/L	-	02/03/2015
Lead	0.20	ug/L	-	02/03/2015
Manganese	14.0	ug/L	-	02/03/2015
Nitrite and Nitrate as N	28	ug/L	-	02/03/2015
Phosphorus Reactive as P - Total	44	ug/L	-	02/03/2015
Phosphorus as P - Total	80	ug/L	-	02/03/2015
Selenium	23.0	ug/L	-	02/03/2015
Suspended Solids (SS)	7.0	mg/L	-	02/03/2015
Zinc	5.0	ug/L	-	02/03/2015
pH	9.1	-	-	02/03/2015

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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	2.00	ug/L	-	02/03/2015
Iron	5.0	ug/L	-	02/03/2015
Selenium	1.00	ug/L	-	02/03/2015
Temperature - Average	23.9	deg C	-	Mar 2015
Temperature - Minimum	21.7	deg C	-	Mar 2015
Temperature - Maximum	26.6	deg C	-	Mar 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	2.00	ug/L	5	02/03/2015
Iron	5.0	ug/L	300	02/03/2015
Selenium	1.00	ug/L	2	02/03/2015
Temperature - Average	30.7	deg C	35	Mar 2015
Temperature - Minimum	26.3	deg C	35	Mar 2015
Temperature - Maximum	34.9	deg C	35	Mar 2015
Maximum Daily Discharge from Ash Dam	22.3	ML	150000	Mar 2015
Monthly Discharge from Ash Dam	288	ML	-	Mar 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	71	ug/L	-	02/03/2015
Phosphorus as P - Total	304	ug/L	-	02/03/2015
pH	6.8	-	-	02/03/2015