



## 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

April 2015



## Unit 1 Boiler Continuous Emission Monitoring Summary

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

- Unit out of service for scheduled maintenance.

	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 - Apr	0	0	0	0	0	0	0	0	0
2 - Apr	0	0	0	0	0	0	0	0	0
3 - Apr	0	0	0	0	0	0	0	0	0
4 - Apr	0	0	0	0	0	0	0	0	0
5 - Apr	0	0	0	0	0	0	0	0	0
6 - Apr	0	0	0	0	0	0	0	0	0
7 - Apr	0	0	0	0	0	0	0	0	0
8 - Apr	0	0	0	0	0	0	0	0	0
9 - Apr	0	0	0	0	0	0	0	0	0
10 - Apr	0	0	0	0	0	0	0	0	0
11 - Apr	0	0	0	0	0	0	0	0	0
12 - Apr	0	0	0	0	0	0	0	0	0
13 - Apr	0	0	0	0	0	0	0	0	0
14 - Apr	0	0	0	0	0	0	0	0	0
15 - Apr	0	0	0	0	0	0	0	0	0
16 - Apr	0	0	0	0	0	0	0	0	0
17 - Apr	0	0	0	0	0	0	0	0	0
18 - Apr	0	0	0	0	0	0	0	0	0
19 - Apr	0	0	0	0	0	0	0	0	0
20 - Apr	0	0	0	0	0	0	0	0	0
21 - Apr	0	0	0	0	0	0	0	0	0
22 - Apr	0	0	0	0	0	0	0	0	0
23 - Apr	0	0	0	0	0	0	0	0	0
24 - Apr	0	0	0	0	0	0	0	0	0
25 - Apr	0	0	0	0	0	0	0	0	0
26 - Apr	0	0	0	0	0	0	0	0	0
27 - Apr	0	0	0	0	0	0	0	0	0
28 - Apr	0	0	0	0	0	0	0	0	0
29 - Apr	0	0	0	0	0	0	0	0	0
30 - Apr	0	0	0	0	0	0	0	0	0

## Unit 2 Boiler Continuous Emission Monitoring Summary

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

	NOX			Particulates			SOX		
	ppm (7% O <sub>2</sub> )			mg/m <sup>3</sup>			ppm (7% O <sub>2</sub> )		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Apr	148	178	118	6	9	5	207	230	197
2 - Apr	156	193	125	9	13	7	207	218	190
3 - Apr	131	194	118	7	9	6	197	212	173
4 - Apr	142	201	111	6	9	5	175	190	161
5 - Apr	128	146	121	7	9	5	189	199	173
6 - Apr	134	161	122	7	8	5	183	188	174
7 - Apr	140	156	127	8	10	5	179	186	170
8 - Apr	144	182	120	8	11	6	181	192	171
9 - Apr	145	194	112	8	10	7	184	201	178
10 - Apr	133	155	117	7	10	6	183	190	173
11 - Apr	124	143	112	8	10	6	179	190	168
12 - Apr	158	195	123	9	12	6	186	201	176
13 - Apr	162	212	131	7	11	6	183	199	176
14 - Apr	156	189	121	7	11	5	191	207	181
15 - Apr	153	199	119	8	11	6	181	205	154
16 - Apr	158	193	106	7	9	6	186	201	172
17 - Apr	162	203	109	6	8	5	178	187	165
18 - Apr	137	198	110	7	11	4	173	187	161
19 - Apr	134	207	101	9	10	7	178	198	158
20 - Apr	159	199	112	8	12	6	171	200	156
21 - Apr	140	177	109	6	10	5	148	168	118
22 - Apr	156	188	118	8	14	5	151	171	140
23 - Apr	157	184	134	12	16	8	183	214	172
24 - Apr	155	181	113	9	15	6	167	180	160
25 - Apr	150	210	112	11	15	8	170	187	147
26 - Apr	153	204	105	11	15	8	150	164	139
27 - Apr	148	178	130	10	15	8	170	187	146
28 - Apr	150	176	121	9	14	7	172	186	163
29 - Apr	157	181	115	7	10	6	161	173	150
30 - Apr	156	183	102	7	12	5	178	194	151

## Unit 3 Boiler Continuous Emission Monitoring Summary

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

	NOX			Particulates			SOX		
	ppm (7% O <sub>2</sub> )			mg/m <sup>3</sup>			ppm (7% O <sub>2</sub> )		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Apr	177	198	143	10	16	5	204	219	190
2 - Apr	189	211	155	12	18	7	203	219	189
3 - Apr	157	201	142	8	15	5	184	198	174
4 - Apr	168	227	132	9	17	5	173	180	165
5 - Apr	153	196	131	3	3	3	177	181	171
6 - Apr	163	188	144	4	4	3	170	173	165
7 - Apr	159	208	144	3	4	3	170	172	167
8 - Apr	162	202	130	4	6	2	173	183	168
9 - Apr	191	233	150	5	6	4	180	187	175
10 - Apr	173	202	144	4	6	2	185	194	180
11 - Apr	151	167	138	4	5	2	173	177	170
12 - Apr	156	183	143	3	4	3	177	179	173
13 - Apr	167	189	140	4	5	2	179	187	172
14 - Apr	168	188	151	5	9	3	191	200	183
15 - Apr	170	198	130	6	12	3	194	219	140
16 - Apr	180	205	115	10	15	6	199	211	168
17 - Apr	187	203	144	10	18	6	204	228	189
18 - Apr	185	226	142	8	14	6	180	190	171
19 - Apr	200	282	163	9	18	5	181	187	175
20 - Apr	237	297	165	11	16	5	189	198	168
21 - Apr	194	216	159	15	19	12	192	198	175
22 - Apr	203	218	166	3	4	3	176	188	101
23 - Apr	190	208	160	4	8	3	208	222	172
24 - Apr	194	210	151	4	6	3	189	197	180
25 - Apr	180	223	159	3	4	2	189	198	174
26 - Apr	196	225	169	3	4	2	173	177	165
27 - Apr	208	231	155	5	8	2	186	202	138
28 - Apr	197	247	155	5	6	3	201	209	176
29 - Apr	198	216	163	12	15	7	193	205	176
30 - Apr	192	207	162	13	17	9	204	218	168

## 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% O <sub>2</sub> )			mg/m <sup>3</sup>			ppm (7% O <sub>2</sub> )		
	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly	Daily Ave	Max Hourly	Min Hourly
1 - Apr	218	266	158	4	8	3	186	208	176
2 - Apr	229	259	173	3	8	3	193	210	181
3 - Apr	224	248	197	4	7	3	171	187	159
4 - Apr	244	284	210	4	7	3	155	165	144
5 - Apr	229	300	203	3	7	3	164	173	151
6 - Apr	221	247	196	3	8	2	158	167	146
7 - Apr	230	250	212	3	7	2	154	160	144
8 - Apr	214	247	191	3	6	2	159	164	155
9 - Apr	213	262	192	3	8	2	162	167	151
10 - Apr	203	243	175	3	9	2	163	170	148
11 - Apr	215	239	189	3	8	2	155	162	148
12 - Apr	220	243	189	3	6	3	159	167	145
13 - Apr	145	167	117	3	8	2	164	181	151
14 - Apr	142	171	123	4	8	3	170	177	155
15 - Apr	146	177	110	4	8	3	173	188	163
16 - Apr	161	180	136	3	6	2	195	210	181
17 - Apr	170	191	147	3	8	2	189	213	173
18 - Apr	162	197	118	3	6	2	179	191	169
19 - Apr	219	265	185	4	9	3	177	196	162
20 - Apr	220	246	189	4	7	3	174	183	163
21 - Apr	188	212	153	4	7	2	160	173	138
22 - Apr	177	205	151	3	8	2	150	162	129
23 - Apr	170	195	148	4	8	3	162	174	135
24 - Apr	169	177	161	4	6	2	157	165	142
25 - Apr	167	188	150	4	7	3	147	155	136
26 - Apr	174	218	148	4	8	3	136	140	127
27 - Apr	178	209	133	4	9	3	148	161	130
28 - Apr	168	196	156	4	8	3	159	167	151
29 - Apr	158	172	137	4	8	3	153	165	135
30 - Apr	158	174	135	4	8	3	159	183	145

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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>	0.30	0.20	0.50
<b>U2</b>	0.30	0.20	0.50
<b>U3</b>	0.40	0.20	0.60
<b>U4</b>	1.00	0.30	1.30
<b>U5</b>	0.40	0.10	0.50
<b>U6</b>	0.60	0.10	0.70

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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>	0.50	0.40	0.90
<b>E2</b>	0.40	0.30	0.70
<b>E3</b>	0.40	0.30	0.70
<b>E4</b>	0.40	0.20	0.60
<b>E5</b>	1.30	0.30	1.60
<b>E6</b>	0.40	0.30	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	21.59					
010cm	22.93	8.21	36.00	82.60	5.58	1.75
050cm	22.99	8.21	36.00	82.30	5.56	
100cm	23.00	8.20	36.00	80.40	5.44	
150cm	23.03	8.21	36.00	82.40	5.57	
200cm	23.06	8.21	36.00	77.70	5.25	
250cm	23.06	8.22	36.00	77.40	5.23	
300cm	23.08	8.21	36.00	82.60	5.58	
Bottom	23.07	8.21	36.00	64.00	4.33	

## 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	19.57					
010cm	23.20	8.22	36.30	113.60	7.66	1.75
050cm	23.32	8.22	36.30	120.10	8.06	
100cm	23.37	8.22	36.30	123.50	8.30	
150cm	23.37	8.23	36.20	123.60	8.30	
200cm	23.37	8.22	36.20	128.90	8.65	
250cm	23.39	8.23	36.30	126.60	8.50	
300cm	23.41	8.22	36.30	131.70	8.84	
350cm	23.40	8.22	36.30	127.40	8.55	
400cm	23.41	8.22	36.30	124.10	8.32	
450cm	23.43	8.21	36.30	115.50	7.74	
500cm	23.44	8.22	36.40	113.80	7.62	
550cm	23.45	8.20	36.40	110.10	7.37	
600cm	23.50	8.19	36.50	106.20	7.10	
650cm	23.61	8.16	36.60	99.30	6.64	
700cm	23.65	8.16	36.70	95.60	6.35	
750cm	23.62	8.16	36.70	96.40	6.41	
Bottom	23.60	8.15	36.70	79.90	5.33	

## 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	22.41					
010cm	22.58	8.34	34.70	109.00	7.44	2.25
050cm	22.60	8.34	35.80	95.60	6.52	
100cm	22.60	8.34	35.90	95.60	6.52	
150cm	22.60	8.34	35.90	94.50	6.44	
200cm	22.60	8.33	35.90	93.80	6.38	
250cm	22.60	8.34	36.00	93.90	6.40	
300cm	22.57	8.34	36.00	93.20	6.35	
350cm	22.55	8.34	36.10	92.70	6.32	
400cm	22.54	8.34	36.10	90.10	6.13	
450cm	22.45	8.34	36.20	88.20	6.01	
500cm	22.42	8.33	36.20	91.20	6.22	
550cm	22.36	8.32	36.30	91.90	6.27	
600cm	22.31	8.32	36.30	88.40	6.03	
650cm	22.30	8.32	36.30	90.00	6.15	
700cm	22.28	8.32	36.30	94.00	6.43	
750cm	22.29	8.32	36.40	95.00	6.49	
800cm	22.27	8.31	36.40	93.70	6.41	
850cm	22.24	8.32	36.40	91.80	6.26	
900cm	22.18	8.32	36.50	87.60	5.99	
950cm	22.17	8.33	36.50	94.50	6.45	
Bottom	22.17	8.32	36.50	88.00	6.01	

## 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	23.04					
010cm	24.64	8.25	35.40	124.40	8.20	2.25
050cm	25.01	8.26	35.40	124.80	8.20	
100cm	24.94	8.26	35.40	128.10	8.44	
150cm	24.73	8.27	35.50	131.40	8.66	
200cm	24.21	8.27	35.50	135.80	9.05	
250cm	24.06	8.26	35.70	138.20	9.22	
300cm	23.95	8.23	35.70	140.80	9.34	
350cm	23.94	8.22	35.80	142.00	9.48	
400cm	23.91	8.21	35.90	145.20	9.70	
450cm	23.77	8.20	35.90	149.20	9.97	
500cm	23.72	8.20	36.00	154.20	10.32	
550cm	23.59	8.16	36.10	158.70	10.63	
600cm	23.58	8.15	36.10	161.40		
Bottom	23.56	8.14	36.10	73.20	4.85	

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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	0.08	ug/L	-	01/04/2015
Copper	0.60	ug/L	-	01/04/2015
Iron	3.0	ug/L	-	01/04/2015
Lead	0.10	ug/L	-	01/04/2015
Manganese	6.5	ug/L	-	01/04/2015
Nitrite and Nitrate as N	77	ug/L	-	01/04/2015
Phosphorus Reactive as P - Total	76	ug/L	-	01/04/2015
Phosphorus as P - Total	147	ug/L	-	01/04/2015
Selenium	20.8	ug/L	-	01/04/2015
Suspended Solids (SS)	5.0	mg/L	-	01/04/2015
Zinc	2.0	ug/L	-	01/04/2015
pH	8.9	-	-	01/04/2015

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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	1.00	ug/L	-	01/04/2015
Iron	9.0	ug/L	-	01/04/2015
Selenium	1.00	ug/L	-	01/04/2015
Temperature - Average	20.3	deg C	-	Apr 2015
Temperature - Minimum	16.2	deg C	-	Apr 2015
Temperature - Maximum	23.5	deg C	-	Apr 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	1.00	ug/L	5	01/04/2015
Iron	17.0	ug/L	300	01/04/2015
Selenium	1.00	ug/L	2	01/04/2015
Temperature - Average	29.1	deg C	35	Apr 2015
Temperature - Minimum	24.7	deg C	35	Apr 2015
Temperature - Maximum	34.4	deg C	35	Apr 2015
Maximum Daily Discharge from Ash Dam	51.3	ML	150000	Apr 2015
Monthly Discharge from Ash Dam	447	ML	-	Apr 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	0.050	ug/L	-	01/04/2015
Copper	0.50	ug/L	-	01/04/2015
Iron	7,170	ug/L	-	01/04/2015
Lead	0.10	ug/L	-	01/04/2015
Manganese	940	ug/L	-	01/04/2015
Nitrite and Nitrate as N	2.0	ug/L	-	01/04/2015
Phosphorus as P - Total	285	ug/L	-	01/04/2015
Selenium	0.60	ug/L	-	01/04/2015
Zinc	2.0	ug/L	-	01/04/2015
pH	6.8		-	01/04/2015