



Eraring energy

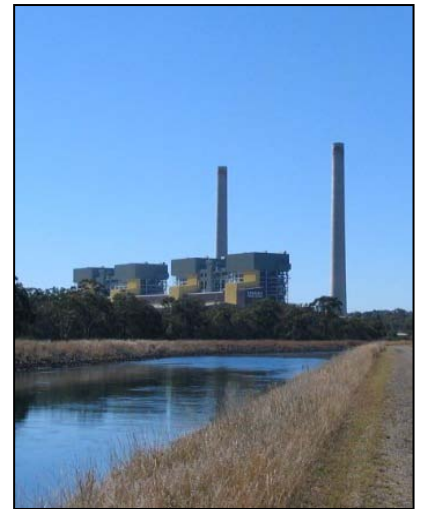
Eraring Power Station – EPA Licence 1429

Coal Unloader – EPA Licence 4297

Hume Power Station - EPA Licence 10675

Environmental Monitoring Data

October 2012



Eraring Power Station - EPA Licence 1429

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

Unit 1 Boiler Continuous Emission Monitoring Summary - October 2012

| Day | Particulate mg/m3 | | | SOx ppm @12% CO2 | | | NOx ppm @12% CO2 | | |
|-----|----------------------|------------|------------|---------------------|------------|------------|---------------------|------------|-----------|
| | 24 hr Avg | Max hr avg | Min Hr Avg | 24 Hr Avg | Max Hr Avg | Min Hr Avg | 24 Hr Avg | Max Hr Avg | Min HrAvg |
| 1 | 11 | 13 | 10 | 176 | 196 | 147 | 170 | 182 | 159 |
| 2 | 12 | 13 | 11 | 177 | 189 | 161 | 174 | 183 | 156 |
| 3 | 11 | 13 | 10 | 178 | 203 | 153 | 173 | 192 | 152 |
| 4 | 11 | 15 | 10 | 203 | 211 | 181 | 174 | 198 | 134 |
| 5 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 6 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 7 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 8 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 9 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 10 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 11 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 12 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 13 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 14 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 15 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 16 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 17 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 18 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 19 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 20 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 21 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 22 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 23 | 12 | 15 | 11 | 177 | 185 | 164 | 229 | 242 | 179 |
| 24 | 12 | 14 | 11 | 191 | 206 | 161 | 212 | 232 | 178 |
| 25 | 12 | 15 | 10 | 198 | 226 | 164 | 201 | 255 | 141 |
| 26 | 12 | 13 | 11 | 190 | 210 | 157 | 211 | 259 | 154 |
| 27 | 12 | 12 | 11 | 162 | 182 | 151 | 182 | 211 | 143 |
| 28 | 11 | 12 | 11 | 162 | 170 | 152 | 163 | 180 | 149 |
| 29 | 12 | 13 | 11 | 170 | 214 | 131 | 172 | 193 | 119 |
| 30 | 12 | 13 | 11 | 208 | 226 | 194 | 166 | 179 | 128 |
| 31 | 12 | 13 | 11 | 203 | 217 | 188 | 167 | 180 | 128 |

Notes

M = Instrument maintenance

O/S = Unit Out of Service

No exceedance of licence limits.

Eraring Power Station - EPA Licence 1429

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

Unit 2 Boiler Continuous Emission Monitoring Summary - October 2012

Notes

No exceedance of licence limits.

No Data for Unit 2 this month due to transformer outage.

Eraring Power Station - EPA Licence 1429

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

Unit 3 Boiler Continuous Emission Monitoring Summary - October 2012

| Day | Particulate mg/m3 | | | SOx ppm @12% CO2 | | | NOx ppm @12% CO2 | | |
|-----|----------------------|------------|------------|---------------------|------------|------------|---------------------|------------|-----------|
| | 24 hr Avg | Max hr avg | Min Hr Avg | 24 Hr Avg | Max Hr Avg | Min Hr Avg | 24 Hr Avg | Max Hr Avg | Min HrAvg |
| | 1 | 9 | 10 | 9 | 188 | 230 | 126 | 197 | 237 |
| 2 | 9 | 11 | 9 | 195 | 228 | 158 | 195 | 260 | 180 |
| 3 | 9 | 13 | 8 | 196 | 232 | 117 | 189 | 219 | 174 |
| 4 | 9 | 10 | 9 | 242 | 274 | 207 | 180 | 199 | 161 |
| 5 | 9 | 10 | 9 | 221 | 252 | 178 | 216 | 262 | 182 |
| 6 | 9 | 9 | 9 | 213 | 239 | 184 | 219 | 252 | 206 |
| 7 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 8 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 9 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 10 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 11 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 12 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 13 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 14 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 15 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 16 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 17 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 18 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 19 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 20 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 21 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 22 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 23 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 24 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 25 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 26 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 27 | 14 | 16 | 13 | 189 | 212 | 172 | 194 | 233 | 170 |
| 28 | 13 | 16 | 12 | 195 | 412 | 168 | 193 | 517 | 149 |
| 29 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 30 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |
| 31 | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S | O/S |

Notes

No exceedance of licence limits.

Eraring Power Station - EPA Licence 1429

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

Unit 4 Boiler Continuous Emission Monitoring Summary - October 2012

Notes

No exceedance of licence limits.

No Data for Unit 4 this month due to upgrade outage.

Eraring Power Station - EPA Licence 1429

EPA Surface Water Monitoring - 4th October 2012

| Eraring Trace Element Analysis | Location: | | EPA 1 (EROC) | | EPA 8 (ERIC) | EPA 10 (ERAD) | | EPA 17 (ERTOIE) |
|-----------------------------------|-----------|------------|----------------------|---------------|--------------|---------------|---------------|-----------------|
| | Analytes | Units | Monitoring Frequency | Licence Limit | Analysis | Analysis | Licence Limit | Analysis |
| Total Phosphorus as P | mg/L | Monthly | | | | | 0.3 | 0.14 |
| Reactive Phosphorus as P - Total | mg/L | Monthly | | | | | 0.25 | |
| Nitrite + Nitrate as N | mg/L | Monthly | | | | | 0.58 | 0.07 |
| Temperature Average | °C | Continuous | Note 1 | 22.6 | 20.3 | | | |
| Temperature Maximum | °C | Continuous | Note 1 | 28.9 | 23.4 | | | |
| Temperature Minimum | °C | Continuous | Note 1 | 17.2 | 17.2 | | | |
| Total Suspended Solids (TSS) | mg/L | Monthly | | | | | <2 | |
| Discharge to Outlet Canal | ML/month | | | | | | 469 | |
| Maximum Discharge to Outlet Canal | ML/day | Continuous | 11000 | 7258 | | 150 | 55 | |

Orange cells above indicate that EPA licence limits apply - Notes on limits given below.

| | |
|--------|--|
| Note 1 | The 98.5% percentile limit specified for temperature at EPA point 1 means during normal electricity supply conditions, cooling water may be discharged over 35°C but up to a maximum temperature of 37.5°C for up to 131 hours over the reporting period. An additional 69 hours are allocated under the shortfall of electricity supply conditions as per EPA Licence Conditions. |
|--------|--|

Notes

There were no licence exceedances for water monitoring points.

mg/L = milligrams per litre

µg/L = micrograms per litre

ML = megalitre

Eraring Power Station - EPA Licence 1429
 EPA Identification no. 15 & 16
 Ambient Air Monitoring September 2012

| Summary of Ambient Monitoring Results - Monitoring Point 15 - Marks Point Ambient | | | | |
|---|---|------------------------|-----------|------------------------|
| 1/09/2012 to 30/09/2012 | | | | |
| | Monitoring Point 15 - Marks Point Ambient | | | |
| | SO ₂ (pphm) | NO ₂ (pphm) | NO (pphm) | NO _x (pphm) |
| Maximum 10 minute Average | 6.2 | 8.6 | 43.6 | 44.1 |
| Maximum 1 hour Average | 2.1 | 3.9 | 19.5 | 21.8 |
| Maximum 24 hour Average | 0.4 | 1.8 | 0.9 | 2.6 |
| 90th Percentile | 0.3 | 1.6 | 0.4 | 2.0 |
| Geometric Mean | 0.1 | 0.6 | 0.2 | 0.7 |
| Geometric Standard Deviation | 4.5 | 2.1 | 5.1 | 2.3 |
| Availability (%) | 92 | 98 | 98 | 98 |

| Summary of Ambient Monitoring Results - Monitoring Point 16 - Dora Creek Ambient | | | | |
|--|--|------------------------|-----------|------------------------|
| 1/09/2012 to 30/09/2012 | | | | |
| | Monitoring Point 16 - Dora Creek Ambient | | | |
| | SO ₂ (pphm) | NO ₂ (pphm) | NO (pphm) | NO _x (pphm) |
| Maximum 10 minute Average | 3.1 | 3.5 | 9.1 | 10.7 |
| Maximum 1 hour Average | 2.1 | 2.3 | 5.3 | 6.8 |
| Maximum 24 hour Average | 0.5 | 1.3 | 1.5 | 2.6 |
| 90th Percentile | 0.2 | 1.4 | 1.3 | 2.6 |
| Geometric Mean | 0.5 | 0.6 | 0.7 | 0.7 |
| Geometric Standard Deviation | 2.8 | 2.0 | 2.5 | 2.5 |
| Availability (%) | 94 | 95 | 95 | 95 |

Summary of Fluoride Monitoring for Dora Creek Ambient

| Monitoring Location | Dora Creek / EPA Monitoring Point 17 | | | | | | | | |
|---------------------|--|---|-------------------------------------|--|---|-------------------------------------|--|---|-------------------------------------|
| Reporting Month | July | | | August | | | September | | |
| Sampling Period | 27/06/2012 to 1/08/2012 | | | 1/08/2012 to 29/08/2012 | | | 29/08/2012 to 3/10/2012 | | |
| Parameter | Gaseous Fluoride (ug/m ³) | Particulate Fluoride (ug/m ³) | Total Fluoride (ug/m ³) | Gaseous Fluoride (ug/m ³) | Particulate Fluoride (ug/m ³) | Total Fluoride (ug/m ³) | Gaseous Fluoride (ug/m ³) | Particulate Fluoride (ug/m ³) | Total Fluoride (ug/m ³) |
| Week 1 Results | <0.1 (0.02) | <0.1 (0.00) | <0.1 (0.02) | <0.1 (0.01) | <0.1 (0.00) | <0.1 (0.01) | <0.1 (0.03) | <0.1 (0.01) | <0.1 (0.04) |
| Week 2 Results | <0.1 (0.01) | <0.1 (0.00) | <0.1 (0.01) | <0.1 (0.00) | <0.1 (0.00) | <0.1 (0.00) | <0.1 (0.02) | <0.1 (0.00) | <0.1 (0.03) |
| Week 3 Results | <0.1 (0.01) | <0.1 (0.00) | <0.1 (0.01) | <0.1 (0.01) | <0.1 (0.00) | <0.1 (0.01) | <0.1 (0.03) | <0.1 (0.01) | <0.1 (0.04) |
| Week 4 Results | <0.1 (0.01) | <0.1 (0.00) | <0.1 (0.01) | <0.1 (0.00) | <0.1 (0.00) | <0.1 (0.01) | <0.1 (0.01) | <0.1 (0.01) | <0.1 (0.02) |
| Week 5 Results | <0.1 (0.01) | <0.1 (0.00) | <0.1 (0.01) | | | | <0.1 (0.03) | <0.1 (0.00) | <0.1 (0.04) |
| % Data Availability | 100% | | | 100% | | | 100% | | |
| Remarks | Data are reported as per AS3580.13.2, with a lowest reportable value of <0.1 ug/m ³ , exact figures appearing in brackets. Samples analysed by Australian Laboratory Services, Report No. EN1202872 | | | Data are reported as per AS3580.13.2, with a lowest reportable value of <0.1 ug/m ³ , exact figures appearing in brackets. Samples analysed by Australian Laboratory Services, Report No. EN1203332 | | | Data are reported as per AS3580.13.2, with a lowest reportable value of <0.1 ug/m ³ , exact figures appearing in brackets. Samples analysed by Australian Laboratory Services, Report No. EN1203810 | | |

Eraring Power Station - EPA Licence 1429
EPA Identification no. 18
Particulates - Deposited Matter

September 2012

| <i>Gauge Number</i> | <i>Insolubles</i> | <i>Ash</i> | <i>*Combustible</i> |
|-------------------------|-------------------|------------|---------------------|
| E1 | 1.4 | 1.0 | 0.4 |
| E2 | 0.4 | 0.4 | <0.1 |
| E3 | 0.9 | 0.5 | 0.4 |
| E4 | 0.8 | 0.4 | 0.4 |
| E5 | 0.4 | 0.3 | 0.1 |
| E6 | 2.4 | 0.4 | 2.0 |

*All measurements are expressed as g/m2/month
(* Calculated Result*

Eraring Power Station - Coal Delivery Facility - EPA Licence 4297
EPA Identification no's. 1 to 6

September 2012

| <i>Gauge Number</i> | <i>Insolubles</i> | <i>Ash</i> | <i>*Combustible</i> |
|-------------------------|-------------------|------------|---------------------|
| U1 | 2.4 | 0.4 | 2.0 |
| U2 | 0.7 | 0.4 | 0.3 |
| U3 | 0.3 | 0.2 | 0.1 |
| U4 | 0.8 | 0.5 | 0.3 |
| U5 | 0.5 | 0.3 | 0.2 |
| U6 | 1.0 | 0.5 | 0.5 |

*All measurements are expressed as g/m²/month
(* Calculated Result*

Ering Power Station - EPA Licence 1429
 EPA identification no's. 4,5,6 & 7 - Ambient water monitoring Lake Macquarie
 Sampling Results for October 2012

Sampling Frequency: Monthly

| Date | Site | Depth (Metres) | Temp (°C) | pH Units | Salinity (ppt) | DO % | DO mg/L | Secchi (Metres) | Descriptor |
|----------|--------------|-------------------|--------------|-------------|-------------------|---------|------------|--------------------|--|
| 3-Oct-12 | EPA 4 (LM10) | Air | 23.8 | | | | | 2.0 | Midway between Cooling Water Canal Inlet and Hungary Point |
| | | 0.1 | 20.5 | 7.8 | 41.1 | 100 | 7.0 | | |
| | | 0.5 | 20.5 | 7.8 | 41.1 | 100 | 7.0 | | |
| | | 1.0 | 20.4 | 7.8 | 41.1 | 100 | 7.0 | | |
| | | 1.5 | 20.3 | 7.8 | 41.1 | 100 | 7.0 | | |
| | | 2.0 | 20.2 | 7.8 | 41.0 | 99 | 7.0 | | |
| | | 2.5 | 20.0 | 7.8 | 41.0 | 99 | 7.0 | | |
| | | 3.0 | 19.9 | 7.8 | 41.1 | 99 | 7.0 | | |
| | | 3.2 | 19.9 | 7.8 | 41.1 | 100 | 7.1 | | |
| 3-Oct-12 | EPA 5 (LM7) | Air | 25.3 | | | | | 3.2 | Off the Old Wangi Power Station Inlet Canal |
| | | 0.1 | 22.7 | 7.8 | 41.2 | 114 | 7.7 | | |
| | | 0.5 | 21.7 | 7.8 | 41.1 | 114 | 7.8 | | |
| | | 1.0 | 22.0 | 7.8 | 41.0 | 112 | 7.6 | | |
| | | 1.5 | 21.1 | 7.8 | 41.0 | 111 | 7.7 | | |
| | | 2.0 | 20.9 | 7.8 | 41.0 | 109 | 7.6 | | |
| | | 2.5 | 20.8 | 7.8 | 41.0 | 107 | 7.5 | | |
| | | 3.0 | 20.5 | 7.8 | 40.9 | 107 | 7.5 | | |
| | | 3.5 | 20.3 | 7.8 | 41.0 | 104 | 7.3 | | |
| | | 4.0 | 20.2 | 7.8 | 41.0 | 103 | 7.2 | | |
| | | 4.5 | 20.0 | 7.8 | 41.0 | 100 | 7.1 | | |
| | | 5.0 | 19.8 | 7.8 | 41.1 | 93 | 6.6 | | |
| | | 5.5 | 19.8 | 7.8 | 41.1 | 92 | 6.5 | | |
| 6.0 | 19.9 | 7.7 | 41.0 | 90 | 6.4 | | | | |
| 3-Oct-12 | EPA 6 (LM12) | Air | 25.2 | | | | | 3.4 | Eringing / Vales Point mixing zone off Fishery Point |
| | | 0.1 | 20.8 | 7.8 | 41.0 | 102 | 7.1 | | |
| | | 0.5 | 20.8 | 7.8 | 41.0 | 102 | 7.1 | | |
| | | 1.0 | 20.8 | 7.8 | 41.0 | 102 | 7.1 | | |
| | | 1.5 | 20.4 | 7.8 | 41.0 | 101 | 7.1 | | |
| | | 2.0 | 20.0 | 7.8 | 40.9 | 101 | 7.1 | | |
| | | 2.5 | 19.9 | 7.8 | 41.0 | 100 | 7.1 | | |
| | | 3.0 | 19.9 | 7.8 | 41.0 | 100 | 7.1 | | |
| | | 3.5 | 19.8 | 7.8 | 41.0 | 99 | 7.0 | | |
| | | 4.0 | 19.7 | 7.8 | 41.0 | 99 | 7.1 | | |
| | | 4.5 | 19.7 | 7.8 | 40.9 | 100 | 7.1 | | |
| | | 5.0 | 19.6 | 7.8 | 41.0 | 100 | 7.1 | | |
| | | 5.5 | 19.6 | 7.8 | 41.0 | 100 | 7.1 | | |
| | | 6.0 | 19.5 | 7.8 | 40.9 | 98 | 7.0 | | |
| 6.5 | 19.4 | 7.8 | 40.9 | 97 | 7.0 | | | | |
| 7.0 | 19.4 | 7.8 | 40.9 | 97 | 6.9 | | | | |
| 7.5 | 19.4 | 7.8 | 40.9 | 97 | 6.9 | | | | |
| 3-Oct-12 | EPA 7 (LM4) | Air | 24.5 | | | | | 4.5 | Northern waters of Lake east of Lake Macquarie Yacht Club |
| | | 0.1 | 18.9 | 7.7 | 40.1 | 101 | 7.3 | | |
| | | 0.5 | 18.8 | 7.7 | 40.1 | 101 | 7.3 | | |
| | | 1.0 | 18.8 | 7.7 | 40.1 | 101 | 7.3 | | |
| | | 1.5 | 18.8 | 7.8 | 40.1 | 101 | 7.3 | | |
| | | 2.0 | 18.7 | 7.7 | 40.1 | 101 | 7.3 | | |
| | | 2.5 | 18.7 | 7.8 | 40.1 | 101 | 7.3 | | |
| | | 3.0 | 18.7 | 7.8 | 40.1 | 101 | 7.3 | | |
| | | 3.5 | 18.7 | 7.8 | 40.1 | 101 | 7.3 | | |
| | | 4.0 | 18.7 | 7.8 | 40.1 | 101 | 7.3 | | |
| | | 4.5 | 18.6 | 7.8 | 40.1 | 101 | 7.4 | | |
| | | 5.0 | 18.6 | 7.8 | 40.1 | 102 | 7.4 | | |
| | | 5.5 | 18.6 | 7.8 | 40.1 | 102 | 7.4 | | |
| | | 6.0 | 18.6 | 7.8 | 40.0 | 102 | 7.4 | | |
| | | 6.5 | 18.5 | 7.8 | 40.1 | 102 | 7.4 | | |
| | | 7.0 | 18.5 | 7.8 | 40.1 | 102 | 7.5 | | |
| 7.5 | 18.5 | 7.8 | 40.1 | 102 | 7.5 | | | | |
| 8.0 | 18.4 | 7.8 | 40.1 | 102 | 7.5 | | | | |
| 8.5 | 18.1 | 7.8 | 40.3 | 101 | 7.4 | | | | |
| 9.0 | 18.1 | 7.8 | 40.3 | 98 | 7.2 | | | | |
| 9.5 | 18.1 | 7.8 | 40.3 | 98 | 7.2 | | | | |

Hume Power Station - EPA Licence 10675
Monitoring/Discharge Points 1 & 2 - October 2012

| EPA 1 (Power Station Drain) | October | | Sampled 17/10/2012 | | EPA 2 (Switchyard Drain) | October | | Sampled | No Discharge |
|-----------------------------|---------|----------------------|--------------------|----------|--------------------------|---------|----------------------|---------|--------------|
| | Units | Monitoring Frequency | Licence Limit | Analysis | | Units | Monitoring Frequency | | |
| Oil and Grease | mg/L | Monthly | 10 | <2 | Oil and Grease | mg/L | Special Frequency | 10 | n/a |
| | | | | | TSS (wet) | mg/L | Special Frequency | 50 | n/a |
| | | | | | | | | | |

TSS =Total Suspended Solids

There were no licence exceedences for monitoring points.

mg/L = milligrams per litre

Special Frequency - sampling and analysis prior to any discharge taking place.

Note: Following incident at Hume on 14th October 2012, no samples or analysis were preformed on discharge point 2 for the month of October. Residual waters in the tank at EPA 2 have been taken off site for disposal to legislative requirements.