

Appendix 4

SURFACE WATER AND WET WEATHER DISCHARGES

Surface Water Monitoring Data

| Sample No. | Date | Time | Sample Location | pH Field | pH Lab | Electrical Conductivity @25C (µS/cm) | Electrical Conductivity (µS/cm) | Total Suspended Solids (mg/L) | Total Organic Carbon (TOC) | Grease & Oil (mg/L) | Total Alkalinity | Hydroxide Alkalinity as CaCO3 | Carbonate Alkalinity as CaCO3 | Bicarbonate Alkalinity as CaCO3 | Aluminium | Antimony | Chloride | Sulfates | Calcium | Magnesium | Molybdenum | Selenium | Sodium | Potassium | Arsenic | Cadmium | Chromium | Copper | Mercury | Nickel | Lead | Manganese | Iron | Zinc | Comments | |
|---------------|------------------|-------|-----------------|----------|--------|--------------------------------------|---------------------------------|-------------------------------|----------------------------|---------------------|------------------|-------------------------------|-------------------------------|---------------------------------|-----------|----------|----------|----------|---------|-----------|------------|----------|--------|-----------|---------|---------|----------|--------|---------|--------|-------|-----------|------|------|----------|-------------------------|
| ES1004139 | 4 March 2010 | 12:50 | SB5 | | 7.85 | | 412 | 30 | 6 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1004139 | 4 March 2010 | 13:00 | SB2 | | 8.3 | | 554 | 17 | <1 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1004139 | 4 March 2010 | 13:15 | SD4 | | 8.08 | | 321 | 12 | <1 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1009878 | 24 May 2010 | 9:35 | SB2 | | 8.14 | | 586 | 30 | 2 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1009878 | 24 May 2010 | 9:25 | SD4 | | 8.11 | | 351 | 9 | 2 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1016142-001 | 11 August 2010 | 13:00 | SD4 | | 7.82 | | 312 | 26 | <1 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1023171-001 | 15 November 2010 | 9:20 | SD4 | | 7.81 | | 186 | 56 | 3 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1023171-002 | 15 November 2010 | 9:40 | SD3 | | 7.54 | | 166 | 140 | 3 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1104965-001 | 8 March 2011 | 9:30 | SB3 | | 8.49 | | 1300 | 20 | <1 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1104965-002 | 8 March 2011 | 9:50 | SD4 | | 8.72 | | 271 | 15 | 2 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1104965-003 | 8 March 2011 | 9:15 | VOID | | 7.68 | | 4220 | 23 | <1 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1109425-001 | 5 May 2011 | 9:55 | SB3 | | 8.3 | | 3020 | 147 | 6 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | Appearance Turbid/Odour |
| ES1109425-002 | 5 May 2011 | 10:30 | SB2 | | 8.85 | | 663 | 233 | 9 | <1 | | | | | | | | | | | | | | | | | | | | | | | | | | Appearance Turbid/Odour |
| ES1109425-003 | 5 May 2011 | 11:40 | SB5 | | 8.93 | | 759 | 36 | 4 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | Appearance Turbid/Odour |
| ES1109617-001 | 9 May 2011 | 11:51 | SD4 | | 8.43 | | 394 | 62 | 5 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1109617-002 | 9 May 2011 | 12:05 | SB4 | | 8.65 | | 512 | 32 | 14 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1109617-003 | 9 May 2011 | 12:40 | VOID | | 8.3 | | 4550 | 6 | 58 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1117295-001 | 10 August 2011 | 11:15 | SD4 | 8.9 | 8.17 | 360 | 313 | 13 | 10 | <5 | | | | | | | | | | | | 0.003 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1117295-002 | 10 August 2011 | 10:45 | SB1 | 9.3 | 9.07 | 648 | 536 | 46 | 47 | <5 | | | | | | | | | | | | 0.007 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1117295-003 | 10 August 2011 | 10:30 | SB2 | 8.9 | 8.2 | 608 | 513 | 82 | 11 | <5 | | | | | | | | | | | | 0.005 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1117295-004 | 10 August 2011 | 10:10 | SB3 | 8.8 | 8.35 | 2250 | 1800 | 82 | 12 | <5 | | | | | | | | | | | | 0.012 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1117295-005 | 10 August 2011 | 11:40 | SB4 | 8.8 | 8.36 | 546 | 474 | 62 | 8 | <5 | | | | | | | | | | | | 0.008 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1117295-006 | 10 August 2011 | 8:45 | SB5 | 9.3 | 8.9 | 940 | 768 | 88 | 24 | <5 | | | | | | | | | | | | 0.01 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1117295-007 | 10 August 2011 | 12:15 | VOID | 8.4 | 8.3 | 5240 | 4050 | 10 | 5 | <5 | 444 | <1 | <1 | 444 | 0.1 | | 1140 | | | | | | 720 | | | | | | | | 0.054 | 0.11 | | | | |
| ES1016142-001 | 11 August 2011 | 13:00 | SD4 | | 7.82 | | 312 | 26 | <1 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1123157-001 | 18 October 2011 | 16:00 | SB3 | 7.84 | 7.84 | | 267 | 91 | 4 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1125734-001 | 22 November 2011 | 10:45 | SD4 | 9.5 | 8.74 | 372 | 299 | 19 | 8 | <5 | | | | | | | | | | | | 0.005 | <0.01 | | | 0.002 | | | | | | | | | | |
| ES1125734-002 | 22 November 2011 | 10:15 | SB1 | 10.1 | 9.22 | 592 | 486 | 208 | 73 | <5 | | | | | | | | | | | | 0.008 | <0.01 | | | 0.009 | | | | | | | | | | |
| ES1125734-003 | 22 November 2011 | 10:00 | SB2 | 10.2 | 9.24 | 486 | 389 | 64 | 5 | <5 | | | | | | | | | | | | 0.018 | <0.01 | | | 0.002 | | | | | | | | | | |
| ES1125734-004 | 22 November 2011 | 9:15 | SB3 | 8.8 | 8.26 | 353 | 283 | 79 | 3 | <5 | | | | | | | | | | | | 0.003 | <0.01 | | | 0.002 | | | | | | | | | | |
| ES1125734-005 | 22 November 2011 | 10:30 | SB4 | 9.7 | 8.95 | 352 | 286 | 40 | 4 | <5 | | | | | | | | | | | | 0.006 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1125734-006 | 22 November 2011 | 9:30 | SB5 | 9.5 | 8.65 | 636 | 504 | 352 | 43 | <5 | | | | | | | | | | | | 0.002 | <0.01 | | | 0.012 | | | | | | | | | | |
| ES1203324-001 | 14 February 2012 | 10:40 | SD4 | 8.9 | 8.2 | 274 | 227 | 16 | 5 | <5 | | | | | | | | | | | | 0.006 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1203324-002 | 14 February 2012 | 10:00 | SB1 | 9.1 | 9.02 | 329 | 279 | 100 | 14 | <5 | | | | | | | | | | | | 0.004 | <0.01 | | | 0.005 | | | | | | | | | | |
| ES1203324-003 | 14 February 2012 | 11:50 | SB2 | 9.5 | 9.12 | 481 | 398 | 51 | 3 | <5 | | | | | | | | | | | | 0.018 | <0.01 | | | 0.002 | | | | | | | | | | |
| ES1203324-004 | 14 February 2012 | 12:10 | SB3 | 9.3 | 8.83 | 437 | 360 | 26 | 1 | <5 | | | | | | | | | | | | 0.014 | <0.01 | | | 0.002 | | | | | | | | | | |
| ES1203324-005 | 14 February 2012 | 11:30 | SB4 | 9 | 8.74 | 335 | 276 | 13 | 2 | <5 | | | | | | | | | | | | 0.011 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1203324-006 | 14 February 2012 | 12:00 | SB5 | 8.8 | 8.46 | 464 | 382 | 14 | 3 | <5 | | | | | | | | | | | | 0.016 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1203324-007 | 14 February 2012 | 12:45 | VOID | 8.6 | 8.59 | 2280 | 1810 | 10 | <1 | <5 | 398 | <1 | 46 | 352 | 0.03 | | 278 | | | | | | 420 | | | | | | | | 0.004 | 0.06 | | | | |
| ES1210728-002 | 1 May 2012 | 11:00 | SD4 | 8.1 | 7.9 | 330 | 276 | 26 | 2 | <5 | | | | | | | | | | | | 0.005 | <0.01 | | | 0.001 | | | | | | | | | | |
| ES1210728-003 | 1 May 2012 | 10:00 | SB1 | 8.7 | 8.82 | 422 | 364 | 136 | 21 | <5 | | | | | | | | | | | | 0.005 | <0.01 | | | 0.006 | | | | | | | | | | |
| ES1210728-004 | 1 May 2012 | 9:40 | SB2 | 8.2 | 8.92 | 682 | 562 | 356 | 9 | <5 | | | | | | | | | | | | 0.017 | <0.01 | | | 0.007 | | | | | | | | | | |
| ES1210728-005 | 1 May 2012 | 9:00 | SB3 | 8 | 8.44 | 498 | 417 | 42 | 2 | <5 | | | | | | | | | | | | 0.015 | <0.01 | | | 0.002 | | | | | | | | | | |
| ES1210728-006 | 1 May 2012 | 10:30 | SB4 | 8.1 | 8.21 | 400 | 334 | 39 | 1 | <5 | | | | | | | | | | | | 0.011 | <0.01 | | | 0.001 | | | | | | | | | | |
| ES1210728-007 | 1 May 2012 | 9:20 | SB5 | 8.3 | 8.74 | 543 | 452 | 34 | 3 | <5 | | | | | | | | | | | | 0.016 | <0.01 | | | 0.001 | | | | | | | | | | |
| ES1219038-001 | 2 August 2012 | 11:30 | SD4 | 8.94 | 8.63 | 269 | 311 | 8 | 5 | <5 | | | | | | | | | | | | 0.005 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1219038-002 | 2 August 2012 | 10:40 | SB2 | 8.85 | 8.84 | 376 | 441 | 24 | 11 | <5 | | | | | | | | | | | | 0.008 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1219038-003 | 2 August 2012 | 10:20 | SB3 | 8.78 | 8.47 | 349 | 393 | 14 | 5 | <5 | | | | | | | | | | | | 0.008 | <0.01 | | | 0.002 | | | | | | | | | | |
| ES1219038-004 | 2 August 2012 | 11:10 | SB4 | 8.89 | 8.79 | 298 | 339 | 8 | 3 | <5 | | | | | | | | | | | | 0.008 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1219038-005 | 2 August 2012 | 11:00 | SB5 | 8.48 | 7.98 | 351 | 401 | 10 | 2 | <5 | | | | | | | | | | | | 0.009 | <0.01 | | | <0.001 | | | | | | | | | | |
| ES1219038-006 | 2 August 2012 | 10:00 | VOID | 8.64 | 8.4 | 3490 | 4400 | 9 | <1 | <5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES1227200-001 | 15 November 2012 | 9:10 | SD4 | 8.22 | 8.24 | 582 | 546 | 66 | 6 | <5 | | | | | | | | | | | | 0.007 | <0.01 | | | 0.003 | | | | | | | | | | |
| ES1227200-002 | 15 November 2012 | 9:45 | SB3 | 9.18 | 8.89 | 1120 | 926 | 96 | 29 | <5 | | | | | | | | | | | | 0.025 | <0.01 | | | 0.004 | | | | | | | | | | Dam level low |
| ES1227200-003 | 15 November 2012 | 9:20 | SB4 | 8.37 | 8.36 | 939 | 754 | 149 | 5 | <5 | | | | | | | | | | | | 0.02 | <0.01 | | | 0.001 | | | | | | | | | | Dam level low |

Wet Weather Discharge Monitoring Data

| Sample No. | Sample Location | Date | Time | pH | Electrical Conductivity (µS/cm) | Total Suspended Solids (mg/L) | Grease & Oil (mg/L) | Total Organic Carbon (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Copper (mg/L) | Lead (mg/L) | Manganese (mg/L) | Molybdenum (mg/L) | Zinc (mg/L) | Iron (mg/L) | Mercury (mg/L) | NOX Nitrite + Nitrate as N (mg/L) | Total Nitrogen as N (mg/L) | Total Nitrogen as N (mg/L) | Total Phosphorous as P (mg/L) | Comments | |
|---------------|-----------------|------------|----------|------|---------------------------------|-------------------------------|---------------------|-----------------------------|------------------|----------------|----------------|---------------|-------------|------------------|-------------------|-------------|-------------|----------------|-----------------------------------|----------------------------|----------------------------|-------------------------------|----------|-------------------|
| ES1025676-001 | CCU | 10/12/2010 | 16:00:00 | 7.17 | 76 | 646 | <5 | 6 | | | | | | | | | | | | | | | | |
| ES1025676-002 | CCD | 10/12/2010 | 16:30:00 | 6.95 | 74 | 2030 | <5 | 8 | | | | | | | | | | | | | | | | |
| ES1025676-003 | SD4 | 10/12/2010 | 10:00:00 | 7.30 | 243 | 50 | <5 | 4 | | | | | | | | | | | | | | | | |
| ES1025676-004 | SD3 | 10/12/2010 | 10:15:00 | 7.18 | 110 | 44 | <5 | 7 | | | | | | | | | | | | | | | | |
| ES1127394-001 | SD4 | 12/12/2011 | 10:40:00 | 7.06 | 95 | 48 | <5 | 11 | | | | | | | | | | | | | | | | |
| ES1127394-002 | CCU | 12/12/2011 | 10:30:00 | 7.09 | 101 | 46 | <5 | 13 | 6.7 | 0.003 | <0.0001 | 0.007 | 0.002 | 0.055 | <0.001 | 0.015 | 6.3 | <0.0001 | 0.01 | 2 | 2 | 1.2 | | |
| ES1127394-003 | CCD | 12/12/2011 | 10:35:00 | 7.16 | 89 | 34 | <5 | 13 | 7.17 | 0.005 | <0.0001 | 0.007 | 0.002 | 0.06 | <0.001 | 0.02 | 6.48 | <0.0001 | 0.01 | 1.3 | 1.3 | 1.22 | | |
| ES1202680-001 | CCD | 1/02/2012 | 13:00 | 6.9 | 48 | 36 | <5 | 5 | | | | | | | | | | | | | | | | |
| ES1202680-002 | SD4 | 6/02/2012 | 12:00 | 8.23 | 272 | 16 | <5 | 3 | | | | | | | | | | | | | | | | Regional flooding |