## Appendix A-1
## Summary Table of Parameters for HAT26

**Hatchet Creek at SR 26**

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | σ-PO4 (D) | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN | TP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 4-Mar-03 | 1210 | 110 | <1.0 | 450 | 60 | 3.3 | 48 | 18 | 0.12 | 0.11 | <5.0 | <5.0 | <0.030 | <0.050 | 1.4 | 0.13 |
| 4-Mar-03 | 1343 | 110 | <1.0 | 450 | 60 | 3.4 | 45 | 18 | 0.12 | 0.12 | <5.0 | <5.0 | <0.030 | <0.050 | 1.5 | 0.12 |
| 4-Mar-03 | 1500 | 98 | <1.0 | 450 | 62 | 3.3 | 31 | 18 | 0.13 | 0.12 | <5.0 | <5.0 | <0.030 | <0.050 | 1.5 | 0.12 |
| 5-Mar-03 | 1130 | 110 | <1.0 | 500 | 60 | 2.9 | 49 | 12 | 0.15 | 0.14 | <5.0 | <5.0 | <0.030 | <0.050 | 1.6 | 0.14 |
| 5-Mar-03 | 1530 | 98 | <1.0 | 500 | 61 | 2.3 | 50 | 14 | 0.14 | 0.13 | <5.0 | <5.0 | <0.030 | <0.050 | 1.5 | 0.13 |
| 6-Mar-03 | 1030 | 100 | <1.0 | 600 | 63 | 2.1 | 57 | 18 | 0.14 | 0.13 | <5.0 | <5.0 | <0.030 | <0.050 | 1.3 | 0.12 |
| 6-Mar-03 | 1230 | 100 | <1.0 | 600 | 61 | 2.1 | 62 | 18 | 0.12 | 0.11 | <5.0 | <5.0 | <0.030 | <0.050 | 1.3 | 0.12 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Max** | 110 | N/A | 600 | 63 | 3.4 | 62 | 18 | 0.15 | 0.14 | N/A | N/A | N/A | N/A | 1.6 | 0.14 |
| **Min** | 98 | N/A | 450 | 60 | 2.1 | 31 | 12 | 0.12 | 0.11 | N/A | N/A | N/A | N/A | 1.3 | 0.12 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 4-Mar-03 | 1210 | 15.5 | 4.92 | 66 | 7.34 | 3.3 | 14.96 | 6.812 | 240.564 |
| 4-Mar-03 | 1343 | 15.6 | 4.91 | 66 | 7.37 | 3.5 | 15.02 | 7.683 | 271.323 |
| 4-Mar-03 | 1500 | 15.7 | 4.91 | 66 | 7.24 | 3.8 | 15.06 | 7.607 | 268.639 |
| 5-Mar-03 | 1130 | 17.0 | 4.83 | 67 | 6.91 | 3.1 | 15.52 | 8.056 | 284.495 |
| 5-Mar-03 | 1530 | 18.5 | 4.84 | 67 | 7.02 | 2.7 | 15.48 | 9.714 | 343.047 |
| 6-Mar-03 | 1030 | 18.6 | 4.80 | 67 | 6.33 | 1.9 | 15.14 | 8.665 | 306.002 |
| 6-Mar-03 | 1230 | 19.2 | 4.80 | 67 | 6.51 | 2.1 | 15.08 | 6.933 | 244.837 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Max** | 19.2 | 4.92 | 67 | 7.37 | 3.8 | 15.52 | 9.714 | 343.047 |
| **Min** | 15.5 | 4.80 | 66 | 6.33 | 1.9 | 14.96 | 6.812 | 240.564 |

## Appendix A-2
## Summary Table of Parameters for LHAT26

**Little Hatchet Creek West Branch at SR 26**

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | σ-PO4 (D) | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN | TP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 4-Mar-03 | 1100 | 110 | 27 | 300 | 91 | 2.5 | 34 | 14 | 0.20 | 0.17 | <5.0 | <5.0 | <0.030 | <0.050 | 1.1 | 0.24 |
| 4-Mar-03 | 1300 | 110 | 28 | 250 | 94 | 2.7 | 31 | 14 | 0.18 | 0.16 | <5.0 | <5.0 | <0.030 | <0.050 | 1.0 | 0.21 |
| 4-Mar-03 | 1435 | 100 | 28 | 250 | 94 | 2.7 | 45 | 14 | 0.21 | 0.20 | <5.0 | <5.0 | <0.030 | <0.050 | 1.0 | 0.21 |
| 5-Mar-03 | 1225 | 110 | 26 | 300 | 82 | 3.7 | 30 | 19 | 0.18 | 0.18 | <5.0 | <5.0 | <0.030 | <0.050 | 1.1 | 0.22 |
| 5-Mar-03 | 1500 | 100 | 26 | 300 | 81 | 3.5 | 32 | 18 | 0.18 | 0.16 | <5.0 | <5.0 | <0.030 | <0.050 | 1.2 | 0.2 |
| 6-Mar-03 | 1000 | 120 | 28 | 350 | 93 | 2.6 | 43 | 14 | 0.24 | 0.20 | <5.0 | <5.0 | <0.030 | <0.050 | 0.91 | 0.23 |
| 6-Mar-03 | 1315 | 110 | 27 | 350 | 93 | 2.3 | 46 | 14 | 0.24 | 0.21 | <5.0 | <5.0 | <0.030 | <0.050 | 1.1 | 0.24 |
| **Max** | | 120 | 28 | 350 | 94 | 3.7 | 46 | 19 | 0.24 | 0.21 | N/A | N/A | N/A | N/A | 1.2 | 0.24 |
| **Min** | | 100 | 26 | 250 | 81 | 2.3 | 30 | 14 | 0.18 | 0.16 | N/A | N/A | N/A | N/A | 0.91 | 0.20 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 4-Mar-03 | 1100 | 15.4 | 6.47 | 101 | 4.07 | 2.2 | 13.04 | 0.595 | 21.012 |
| 4-Mar-03 | 1300 | 15.5 | 6.45 | 102 | 4.16 | 2.4 | 13.10 | 0.752 | 26.557 |
| 4-Mar-03 | 1435 | 15.6 | 6.47 | 104 | 4.05 | 2.6 | 13.12 | 0.810 | 28.605 |
| 5-Mar-03 | 1225 | 18.0 | 6.52 | 91 | 3.88 | 3.5 | 13.22 | 0.794 | 28.04 |
| 5-Mar-03 | 1500 | 19.0 | 6.52 | 92 | 3.83 | 3.3 | 13.22 | 0.749 | 26.451 |
| 6-Mar-03 | 1000 | 19.4 | 6.42 | 100 | 2.66 | 2.2 | 13.32 | 0.356 | 12.572 |
| 6-Mar-03 | 1315 | 21.1 | 6.43 | 102 | 2.64 | 2.1 | 13.28 | 0.300 | 10.594 |
| **Max** | | 21.1 | 6.52 | 104 | 4.16 | 3.5 | 13.32 | 0.810 | 28.605 |
| **Min** | | 15.4 | 6.42 | 91 | 2.64 | 2.1 | 13.04 | 0.300 | 10.594 |

## Appendix A-3
## Summary Table of Parameters for LFC329B

**Lake Forest Creek at CR 329B**

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN | TP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 4-Jun-03 | 945 | 110 | 48 | 80 | 150 | 10 | 13 | 9.0 | 0.086 | 15 | 9 | <0.030 | 0.11 | 0.62 | 0.14 |
| 4-Jun-03 | 1230 | 62 | 40 | 80 | 130 | 23 | 12 | 7.1 | 0.082 | 10 | 26 | <0.030 | 0.11 | 0.49 | 0.15 |
| 4-Jun-03 | 1300 | 96 | 41 | 70 | 130 | 25 | 13 | 7.4 | 0.078 | 13 | 32 | <0.030 | 0.10 | 0.54 | 0.16 |
| 4-Jun-03 | 1330 | 94 | 37 | 70 | 120 | 18 | 11 | 6.7 | 0.082 | 12 | 26 | <0.030 | 0.15 | 0.47 | 0.15 |
| 4-Jun-03 | 1500 | 100 | 40 | 90 | 130 | 11 | 13 | 7.9 | 0.086 | 14 | <5.0 | <0.030 | 0.086 | 0.57 | 0.12 |
| 5-Jun-03 | 1120 | 120 | 51 | 120 | 160 | 2.9 | 17 | 9.5 | 0.088 | 14 | <5.0 | <0.030 | <0.050 | 0.65 | 2.5 |
| **Max** | | 120 | 51 | 120 | 160 | 25 | 17 | 9.5 | 0.088 | 15 | 32 | N/A | 0.15 | 0.65 | 2.5 |
| **Min** | | 62 | 37 | 70 | 120 | 2.9 | 11 | 6.7 | 0.078 | 10 | <5.0 | N/A | <0.050 | 0.47 | 0.12 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | $m^3/s$ |
| 4-Jun-03 | 945 | 22.7 | 6.91 | 159 | 5.4 | 12 | 11.58 | 0.223 | 7.875 |
| 4-Jun-03 | 1000 | 22.7 | 6.9 | 159 | 5.31 | 12 | 11.54 | NR | NR |
| 4-Jun-03 | 1015 | 22.7 | 6.9 | 158 | 5.31 | 16 | 11.54 | NR | NR |
| 4-Jun-03 | 1030 | 22.7 | 6.9 | 159 | 5.23 | 11 | 11.56 | NR | NR |
| 4-Jun-03 | 1045 | 22.7 | 6.89 | 159 | 5.19 | 11 | 11.54 | NR | NR |
| 4-Jun-03 | 1100 | 22.7 | 6.89 | 157 | 5.16 | 9.4 | 11.54 | NR | NR |
| 4-Jun-03 | 1115 | 22.8 | 6.89 | 154 | 5.21 | 9.4 | 11.56 | NR | NR |
| 4-Jun-03 | 1130 | 22.7 | 6.93 | 143 | 5.88 | 14 | 11.6 | NR | NR |
| 4-Jun-03 | 1145 | 22.7 | 6.92 | 138 | 5.9 | 25 | 11.6 | NR | NR |
| 4-Jun-03 | 1200 | 22.7 | 6.91 | 135 | 5.85 | 25 | 11.6 | NR | NR |
| 4-Jun-03 | 1215 | 22.6 | 6.88 | 133 | 5.73 | 30 | 11.62 | NR | NR |
| 4-Jun-03 | 1230 | 22.6 | 6.87 | 131 | 5.68 | 32 | 11.62 | 0.224 | 7.910 |
| 4-Jun-03 | 1245 | 22.6 | 6.87 | 132 | 5.68 | 28 | 11.64 | NR | NR |
| 4-Jun-03 | 1300 | 22.5 | 6.88 | 135 | 5.7 | 30 | 11.66 | NR | NR |
| 4-Jun-03 | 1315 | 22.5 | 6.87 | 131 | 5.67 | 29 | 11.66 | NR | NR |
| 4-Jun-03 | 1330 | 22.5 | 6.82 | 123 | 5.62 | 27 | 11.68 | 0.132 | 4.662 |
| 4-Jun-03 | 1345 | 22.5 | 6.83 | 121 | 5.56 | 19 | 11.68 | NR | NR |
| 4-Jun-03 | 1400 | 22.5 | 6.82 | 124 | 5.48 | 16 | 11.68 | NR | NR |
| 4-Jun-03 | 1415 | 22.6 | 6.82 | 128 | 5.41 | 14 | 11.68 | NR | NR |
| 4-Jun-03 | 1430 | 22.6 | 6.83 | 132 | 5.36 | 14 | 11.68 | NR | NR |
| 4-Jun-03 | 1445 | 22.7 | 6.83 | 134 | 5.31 | 14 | 11.7 | NR | NR |
| 4-Jun-03 | 1500 | 22.7 | 6.83 | 135 | 5.28 | 14 | 11.7 | NR | NR |
| 5-Jun-03 | 1120 | 22.9 | 6.97 | 163 | 5.66 | 3.1 | 11.5 | NR | NR |
| **Max** | | 22.9 | 6.97 | 163 | 5.9 | 32 | 11.7 | 0.224 | 7.910 |
| **Min** | | 22.5 | 6.82 | 121 | 5.16 | 3.1 | 11.5 | 0.132 | 4.662 |

## Appendix A-4
## Summary Table of Parameters for HOGSW2

**Hogtown Creek at SW 2nd Avenue**

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN | TP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 19-Jun-03 | 1315 | 160 | 97 | 100 | 240 | 59 | 11 | 22 | 0.98 | <5.0 | 72 | <0.030 | 0.32 | 0.31 | 1.1 |
| 19-Jun-03 | 1405 | 180 | 96 | 75 | 230 | 170 | 12 | 20 | 0.71 | <5.0 | 240 | <0.030 | 0.32 | 0.33 | 2.1 |
| 19-Jun-03 | 1450 | 160 | 92 | 75 | 230 | 60 | 12 | 20 | 1.1 | <5.0 | 63 | <0.030 | 0.31 | 0.24 | 1.0 |
| 19-Jun-03 | 1520 | 160 | 91 | 70 | 230 | 87 | 12 | 22 | 0.75 | <5.0 | 110 | <0.030 | 0.32 | 0.33 | 1.4 |
| 19-Jun-03 | 1550 | 160 | 84 | 70 | 230 | 39 | 12 | 20 | 0.88 | 8.3 | 49 | <0.030 | 0.3 | 0.35 | 0.96 |
| **Max** | | 180 | 97 | 100 | 240 | 170 | 12 | 22 | 1.1 | 8.3 | 240 | <0.030 | 0.32 | 0.35 | 2.1 |
| **Min** | | 160 | 84 | 70 | 230 | 39 | 11 | 20 | 0.71 | <5.0 | 49 | <0.030 | 0.30 | 0.24 | 0.96 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 19-Jun-03 | 1315 | 25.1 | 7.91 | 241 | 8.16 | 1.3 | 6.66 | 1.031 | 36.406 |
| 19-Jun-03 | 1350 | 27.3 | 7.71 | 75 | 5.95 | 3.4 | 6.74 | NR | NR |
| 19-Jun-03 | 1405 | 26.2 | 7.78 | 103 | 6.51 | 3.4 | 6.76 | 0.937 | 33.090 |
| 19-Jun-03 | 1420 | 26.1 | 7.81 | 131 | 7.93 | 76 | 6.68 | NR | NR |
| 19-Jun-03 | 1435 | 26.2 | 7.91 | 143 | 8.01 | 51 | 6.67 | NR | NR |
| 19-Jun-03 | 1450 | 25.8 | 7.82 | 144 | 8.00 | 61 | 6.68 | NR | NR |
| 19-Jun-03 | 1505 | 26.1 | 7.9 | 167 | 7.83 | 160 | 6.69 | NR | NR |
| 19-Jun-03 | 1520 | 25.9 | 7.85 | 172 | 7.80 | 120 | 6.67 | 0.823 | 29.064 |
| 19-Jun-03 | 1535 | 25.8 | 7.87 | 168 | 7.90 | 76 | 6.66 | NR | NR |
| 19-Jun-03 | 1550 | 25.6 | 7.87 | 167 | 7.87 | 52 | 6.67 | 0.869 | 30.688 |
| **Max** | | 27.3 | 7.91 | 241 | 8.16 | 160 | 6.76 | 1.031 | 36.406 |
| **Min** | | 25.1 | 7.71 | 75 | 5.95 | 1.3 | 6.66 | 0.823 | 29.064 |

## Appendix A-5
## Summary Table of Parameters for SWBNPP

### Sweetwater Branch, North Paynes Prairie

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | σ-PO4 (U) | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN | TP | Chloro-phyll a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 15-Jul-03 | 1200 | 440 | 95 | 10 | 660 | 2.8 | 6.6 | 120 | 1.20 | 1.2 | 120 | <5.0 | <0.030 | 3.7 | 0.58 | 1.5 | 0.8 |
| 22-Jul-03 | 1200 | 320 | 73 | 20 | 520 | 65 | 9.8 | 68 | 0.46 | 0.71 | 62 | 66 | <0.030 | 1.2 | 0.68 | 1.4 | 2.1 |
| 22-Jul-03 | 1300 | 290 | 90 | 40 | 470 | 100 | 12 | 38 | 0.35 | 0.77 | 67 | 210 | <0.030 | 0.78 | 0.87 | 2.9 | 29.7 |
| 22-Jul-03 | 1315 | 200 | 68 | 25 | 310 | 120 | 11 | 41 | 0.29 | 0.62 | 35 | 240 | <0.030 | 0.62 | 0.66 | 1.8 | 21 |
| 22-Jul-03 | 1325 | 170 | 63 | 25 | 270 | 92 | 11 | 41 | 0.31 | 0.6 | 28 | 180 | <0.030 | 0.63 | 0.53 | 1.4 | 12.9 |
| 22-Jul-03 | 1355 | 190 | 63 | 25 | 300 | 110 | 10 | 39 | 0.32 | 0.7 | 30 | 160 | <0.030 | 0.79 | 0.56 | 1.4 | 7.6 |
| **Max** | | 440 | 95 | 40 | 660 | 120 | 12 | 120 | 1.20 | 1.2 | 120 | 240 | N/A | 3.7 | 0.87 | 2.9 | 29.7 |
| **Min** | | 170 | 63 | 10 | 270 | 2.8 | 6.6 | 38 | 0.29 | 0.6 | 28 | <5.0 | N/A | 0.62 | 0.53 | 1.4 | 0.8 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 15-Jul-03 | 1200 | 26.6 | 7.64 | 692 | 7.84 | 2.2 | 1.58 | 0.411 | 14.514 |
| 22-Jul-03 | 1200 | 27.0 | 7.57 | 740 | 7.57 | 39.3 | 1.70 | 0.411 | 14.514 |
| 22-Jul-03 | 1230 | NR | NR | NR | NR | NR | 1.76 | 0.425 | 15.009 |
| 22-Jul-03 | 1310 | 26.5 | 7.64 | 322 | 7.21 | 140 | 2.80 | NR | NR |
| 22-Jul-03 | 1325 | 26.6 | 7.63 | 279 | 7.19 | 140 | 2.78 | NR | NR |
| 22-Jul-03 | 1355 | 26.5 | 7.55 | 144 | 6.31 | 140 | 2.40 | NR | NR |
| 22-Jul-03 | 1420 | NR | NR | NR | NR | NR | 2.12 | 0.819 | 28.923 |
| **Max** | | 27.0 | 7.64 | 740 | 7.84 | 140 | 2.80 | 0.819 | 28.923 |
| **Min** | | 26.5 | 7.55 | 144 | 6.31 | 2.2 | 1.58 | 0.411 | 14.514 |

## Appendix B-1
### Summary Table of Parameters for TUMSW5

**Tumblin Creek at SW 5th Avenue**

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | TP | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 5-Aug-03 | 1220 | 250 | 150 | 10 | 420 | 7.5 | 4.3 | 24 | 0.24 | 0.17 | 40 | <5.0 | <0.030 | 0.22 | 0.24 |
| 5-Aug-03 | 1349 | 180 | 120 | 15 | 310 | 19 | 5.8 | 17 | 0.21 | 0.33 | 28 | 32 | <0.030 | 0.23 | 0.55 |
| 5-Aug-03 | 1415 | 22 | 28 | 15 | 35 | 27 | 7.3 | <1.0 | 0.1 | 0.21 | 68 | <5.0 | <0.030 | <0.050 | 0.38 |
| 5-Aug-03 | 1500 | 43 | 32 | 20 | 72 | 7.2 | 4.3 | 2.4 | 0.1 | <0.01 | <5 | <5.0 | <0.030 | 0.057 | 0.57 |
| 5-Aug-03 | 1545 | 70 | 44 | 20 | 100 | 8.7 | 4.3 | 4.3 | 0.094 | 0.15 | 5.8 | <5.0 | <0.030 | 0.62 | 0.31 |
| **Max** | | 250 | 150 | 20 | 420 | 27 | 7.3 | 24 | 0.24 | 0.33 | 68 | 32 | N/A | 0.62 | 0.57 |
| **Min** | | 22 | 28 | 10 | 35 | 7.2 | 4.3 | <1.0 | 0.094 | <0.01 | <5.0 | <5.0 | N/A | <0.050 | 0.24 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 5-Aug-03 | 1220 | 26.4 | 7.49 | 434 | 5.92 | 6.6 | 7.52 | 0.001 | 0.035 |
| 5-Aug-03 | 1345 | 27.9 | 7.63 | 240 | 6.97 | 75 | 7.63 | NR | NR |
| 5-Aug-03 | 1400 | 28.4 | 8.19 | 43 | 8.08 | NR | 8.50 | 0.441 | 15.574 |
| 5-Aug-03 | 1415 | 27.1 | 8.28 | 23 | 8.35 | 27 | 9.30 | NR | NR |
| 5-Aug-03 | 1430 | 27.0 | 8.08 | 30 | 6.42 | NR | 9.15 | NR | NR |
| 5-Aug-03 | 1445 | 27.0 | 7.76 | 52 | 7.95 | 18 | 7.90 | 0.179 | 6.321 |
| 5-Aug-03 | 1500 | 26.9 | 7.62 | 66 | 7.69 | 13 | 7.85 | NR | NR |
| 5-Aug-03 | 1515 | 26.9 | 7.56 | 78 | 7.54 | NR | NR | NR | NR |
| 5-Aug-03 | 1530 | 26.9 | 7.53 | 90 | 7.38 | NR | NR | NR | NR |
| 5-Aug-03 | 1545 | 26.9 | 7.49 | 101 | 7.21 | NR | 7.68 | NR | NR |
| 5-Aug-03 | 1600 | NR | NR | NR | NR | NR | 7.66 | 0.015 | 0.530 |
| **Max** | | 28.4 | 8.28 | 434 | 8.35 | 75.1 | 9.30 | 0.441 | 15.574 |
| **Min** | | 26.4 | 7.49 | 23 | 5.92 | 6.6 | 7.52 | 0.001 | 0.035 |

## Appendix B-10

## Organic Constituents Detected in Tumblin Creek Stormwater

### POLYCYCLIC AROMATIC HYDROCARBONS

| TUMBLIN CREEK AT SW 5TH AVE | TUMSW5 SS#1 8/20/2003 12:45 | TUMSW5 SS#2 8/21/2003 17:40 | TUMSW5 SS#3 8/21/2003 17:50 | TUMSW5 SS#4 8/21/2003 18:00 | TUMSW5 SS#5 8/21/2003 18:20 | TUMSW5 SS#6 8/21/2003 18:45 |
|---|---|---|---|---|---|---|
| **Parameter** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** |
| Benzo (a) anthracene | <0.20 | <0.20 | <0.20 | 0.321 | <0.20 | 0.2 |
| Benzo (a) pyrene | <0.20 | <0.20 | 0.22 | 0.49 | <0.20 | 0.25 |
| Benzo (b) fluoranthene | <0.20 | 0.32 | 0.41 | 0.96 | 0.39 | 0.46 |
| Benzo (g,h,i) pyrene | <0.20 | <0.20 | <0.20 | 0.7 | 0.24 | 0.37 |
| Benzo (k) fluoranthene | <0.20 | <0.20 | 0.34 | 0.68 | 0.24 | 0.32 |
| Chrysene | <0.20 | <0.20 | 0.53 | 1.1 | 0.44 | 0.52 |
| Dibenzo (a,h) antrhacene | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | 0.21 |
| Fluoranthene | <0.20 | 0.25 | 0.83 | 1.8 | 0.7 | 0.7 |
| Indeno (1,2,3-cd) pyrene | <0.20 | <0.20 | 0.26 | 0.62 | 0.22 | 0.34 |
| Phenanthrene | <0.20 | 0.2 | 0.32 | 0.69 | 0.26 | 0.26 |
| Pyrene | <0.20 | 0.21 | 0.65 | 1.4 | 0.58 | 0.5 |

| TUMBLIN CREEK AT DEPOT AVE | TUMDEPOT SS#1 8/20/2003 12:45 | TUMDEPOT SS#2 8/21/2003 17:40 | TUMDEPOT SS#3 8/21/2003 17:50 | TUMDEPOT SS#4 8/21/2003 18:00 | TUMDEPOT SS#5 8/21/2003 18:20 | TUMDEPOT SS#6 8/21/2003 18:45 | TUMDEPOT SS#7 8/21/2003 19:20 |
|---|---|---|---|---|---|---|---|
| **Parameter** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** |
| Benzo (a) anthracene | <0.20 | <0.20 | <0.20 | <0.20 | 0.2 | <0.20 | ug/L |
| Benzo (a) pyrene | <0.20 | <0.20 | <0.20 | 0.29 | 0.32 | <0.20 | <0.20 |
| Benzo (b) fluoranthene | <0.20 | <0.20 | <0.20 | 0.46 | 0.73 | 0.37 | <0.20 |
| Benzo (g,h,i) pyrene | <0.20 | <0.20 | <0.20 | 0.34 | 0.52 | 0.27 | <0.20 |
| Benzo (k) fluoranthene | <0.20 | <0.20 | 0.25 | 0.4 | 0.45 | 0.26 | <0.20 |
| Chrysene | <0.20 | <0.20 | 0.26 | 0.55 | 0.85 | 0.5 | <0.20 |
| Dibenzo (a,h) antrhacene | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| Fluoranthene | <0.20 | <0.20 | 0.4 | 0.82 | 1.1 | 0.76 | <0.20 |
| Indeno (1,2,3-cd) pyrene | <0.20 | <0.20 | <0.20 | 0.28 | 0.42 | 0.22 | <0.20 |
| Phenanthrene | <0.20 | <0.20 | <0.20 | 0.27 | 0.32 | 0.23 | <0.20 |
| Pyrene | <0.20 | <0.20 | 0.34 | 0.71 | 0.88 | 0.58 | <0.20 |

| TUMBLIN CREEK AT 441 | TUM441 SS#1 8/20/2003 12:30 | TUM441 SS#2 8/21/2003 17:40 | TUM441 SS#3 8/21/2003 17:50 | TUM441 SS#4 8/21/2003 18:00 | TUM441 SS#5 8/21/2003 18:20 | TUM441 SS#6 8/21/2003 18:45 | TUM441 SS#7 8/21/2003 19:30 |
|---|---|---|---|---|---|---|---|
| **Parameter** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** |
| Benzo (a) anthracene | <0.20 | <0.20 | <0.20 | 0.3 | <0.20 | 0.24 | <0.20 |
| Benzo (a) pyrene | <0.20 | <0.20 | 1.4 | 0.49 | 0.29 | 0.41 | <0.20 |
| Benzo (b) fluoranthene | <0.20 | <0.20 | 2.7 | 1.1 | 0.66 | 0.62 | <0.20 |
| Benzo (g,h,i) pyrene | <0.20 | <0.20 | 2 | 0.71 | 0.43 | 0.49 | <0.20 |
| Benzo (k) fluoranthene | <0.20 | <0.20 | 2.2 | 0.72 | 0.42 | 0.56 | <0.20 |
| Chrysene | <0.20 | <0.20 | 3.5 | 1.4 | 0.9 | 0.83 | <0.20 |
| Dibenzo (a,h) antrhacene | <0.20 | <0.20 | 0.53 | <0.20 | <0.20 | <0.20 | <0.20 |
| Fluoranthene | <0.20 | <0.20 | 5.7 | 2.5 | 1.5 | 1.2 | <0.20 |
| Indeno (1,2,3-cd) pyrene | <0.20 | <0.20 | 1.7 | 0.59 | 0.38 | 0.42 | <0.20 |
| Phenanthrene | <0.20 | <0.20 | 2.5 | 1 | 0.59 | 0.49 | <0.20 |
| Pyrene | <0.20 | <0.20 | 4.4 | 1.9 | 1.1 | 1.1 | <0.20 |

**NOTE:** Volatile Organic Compound p-Cymene was found at sample site TUMSW5 SS#2 @1.7ug/L.

Organo Chlorine beta-BHC was found at sites TUMSW5 (SS#4=0.10ug/L, SS#5=0.071ug/L, SS#6=0.077ug/L) and TUM441(SS#3=0.37ug/L, SS#4=0.28ug/L, SS#5=0.151ug/L, SS#6=0.061ug/L) .

## Appendix B-11

### ICP Metals Detected in Tumblin Creek

**METALS CONCENTRATIONS IN STORM WATER**

| TUMBLIN CREEK AT SE 5TH AVE | TUMSW5 SS#1 8/20/2003 12:45 | TUMSW5 SS#2 8/21/2003 17:40 | TUMSW5 SS#3 8/21/2003 17:50 | TUMSW5 SS#4 8/21/2003 18:00 | TUMSW5 SS#5 8/21/2003 18:20 | TUMSW5 SS#6 8/21/2003 18:45 |
|---|---|---|---|---|---|---|
| **Parameter** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** |
| IRON | 0.18 | 0.52 | 0.93 | 0.56 | 0.68 | 0.4 |
| LEAD | <0.0050 | 0.011 | 0.017 | 0.011 | 0.016 | 0.0098 |
| ZINC | <0.020 | 0.044 | 0.11 | 0.076 | 0.71 | 0.054 |

| TUMBLIN CREEK AT DEPOT AVE | TUMDEPOT SS#1 8/20/2003 12:45 | TUMDEPOT SS#2 8/21/2003 17:40 | TUMDEPOT SS#3 8/21/2003 17:50 | TUMDEPOT SS#4 8/21/2003 18:00 | TUMDEPOT SS#5 8/21/2003 18:20 | TUMDEPOT SS#6 8/21/2003 18:45 | TUMDEPOT SS#7 8/21/2003 19:20 |
|---|---|---|---|---|---|---|---|
| **Parameter** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** |
| IRON | 0.3 | 0.51 | 1.4 | 0.58 | 0.77 | 0.75 | <0.050 |
| LEAD | <0.0050 | 0.0053 | 0.041 | 0.011 | 0.011 | 0.011 | <0.0050 |
| ZINC | <0.020 | <0.020 | 0.11 | 0.043 | 0.077 | 0.073 | <0.020 |

| TUMBLIN CREEK AT 441 | TUM441 SS#1 8/20/2003 12:30 | TUM441 SS#2 8/21/2003 17:40 | TUM441 SS#3 8/21/2003 17:50 | TUM441 SS#4 8/21/2003 18:00 | TUM441 SS#5 8/21/2003 18:20 | TUM441 SS#6 8/21/2003 18:45 | TUM441 SS#7 8/21/2003 19:30 |
|---|---|---|---|---|---|---|---|
| **Parameter** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** |
| IRON | 0.17 | 0.2 | 0.38 | 0.34 | 0.29 | 1.8 | <0.050 |
| LEAD | <0.0050 | <0.0050 | 0.0056 | <0.0050 | <0.0050 | 0.012 | <0.0050 |
| ZINC | <0.020 | <0.020 | 0.042 | 0.03 | 0.025 | 0.043 | <0.020 |

## Appendix B-2
## Summary Table of Parameters for TUMDEPOT

**Tumblin Creek at Depot Avenue**

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN | TP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 5-Aug-03 | 1220 | 190 | 91 | 15 | 310 | 3.2 | 5.2 | 23 | 0.12 | 40 | <5 | <0.030 | 0.29 | 0.48 | 0.17 |
| 5-Aug-03 | 1349 | 170 | 83 | 15 | 280 | 9.5 | 8.6 | 22 | 0.17 | 30 | 10 | <0.030 | 0.27 | 0.40 | 0.17 |
| 5-Aug-03 | 1415 | 31 | 49 | 15 | 44 | 71 | 5.2 | 1.3 | 0.22 | <5.0 | 160 | <0.030 | 0.077 | 0.70 | 0.46 |
| 5-Aug-03 | 1500 | 34 | 29 | 20 | 51 | 21 | 5.1 | 1.7 | 0.13 | <5.0 | 20 | <0.030 | 0.068 | 0.50 | <0.10 |
| 5-Aug-03 | 1545 | 48 | 34 | 20 | 77 | 14 | 3.8 | 2.7 | 0.130 | <5.0 | 9.5 | <0.030 | 0.075 | 0.34 | 0.15 |
| **Max** | | 190 | 91 | 20 | 310 | 71 | 8.6 | 23 | 0.22 | 40 | 160 | N/A | 0.29 | 0.70 | 0.46 |
| **Min** | | 31 | 29 | 15 | 44 | 3.2 | 3.8 | 1.3 | 0.12 | <5.0 | <5.0 | N/A | 0.068 | 0.34 | <0.10 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 5-Aug-03 | 1242 | NR | 7.37 | 317 | 6.36 | 3.4 | 12.12 | 0.063 | 2.225 |
| 5-Aug-03 | 1345 | 26.6 | 7.46 | 272 | 6.73 | NR | 12.42 | NR | NR |
| 5-Aug-03 | 1400 | 26.1 | 7.47 | 286 | 6.72 | NR | NR | NR | NR |
| 5-Aug-03 | 1415 | 28.1 | 9.36 | 51 | 8.15 | 42 | 14.48 | 1.996 | 70.488 |
| 5-Aug-03 | 1430 | 27.3 | 8.74 | 36 | 8.32 | NR | NR | NR | NR |
| 5-Aug-03 | 1445 | 27.3 | 8.49 | 41 | 8.32 | NR | NR | NR | NR |
| 5-Aug-03 | 1500 | 27.3 | 8.20 | 51 | 8.03 | 27 | 12.40 | 0.223 | 7.875 |
| 5-Aug-03 | 1515 | 27.3 | 8.14 | 53 | 7.07 | NR | NR | NR | NR |
| 5-Aug-03 | 1530 | 27.3 | 7.96 | 55 | 7.55 | 18 | 12.28 | 0.181 | 6.392 |
| 5-Aug-03 | 1545 | 27.3 | 7.78 | 74 | 7.48 | NR | NR | NR | NR |
| **Max** | | 28.1 | 9.36 | 317 | 8.32 | 42 | 14.48 | 1.996 | 70.488 |
| **Min** | | 26.1 | 7.37 | 36 | 6.36 | 3.4 | 12.12 | 0.063 | 2.225 |

## Appendix B-3
## Summary Table of Parameters for TUM441

**Tumblin Creek at 441**

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | TP | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 5-Aug-03 | 1235 | 180 | 100 | 20 | 290 | 3.2 | 7.4 | 18 | 0.21 | 0.19 | 64 | <5.0 | <0.03 | 0.19 | 0.42 |
| 5-Aug-03 | 1337 | 150 | 86 | 25 | 250 | 51 | 4.0 | 14 | 0.39 | 0.60 | 25 | 64 | <0.03 | 0.23 | 0.58 |
| 5-Aug-03 | 1414 | 84 | 58 | 20 | 140 | 69 | 4.7 | 5 | 0.39 | 0.62 | 8.6 | 89 | <0.03 | 0.13 | 0.29 |
| 5-Aug-03 | 1505 | 34 | 39 | 15 | 50 | 63 | 4.6 | 1.4 | 0.43 | 0.72 | <5.0 | 90 | <0.03 | 0.065 | 0.29 |
| 5-Aug-03 | 1550 | 42 | 34 | 15 | 82 | 34 | 1.0 | 1.6 | 0.29 | 0.40 | <5.0 | <5.0 | <0.03 | 0.068 | 0.3 |
| **Max** | | 180 | 100 | 25 | 290 | 69 | 7.4 | 18 | 0.43 | 0.72 | 64 | 90 | N/A | 0.23 | 0.58 |
| **Min** | | 34 | 34 | 15 | 50 | 3.2 | 1.0 | 1.4 | 0.21 | 0.19 | <5.0 | <5.0 | N/A | 0.065 | 0.29 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 5-Aug-03 | 1235 | 27.0 | 8.38 | 274 | 10.5 | 4.4 | 0.04 | NR | NR |
| 5-Aug-03 | 1252 | 26.9 | 8.27 | 256 | 9.78 | 87 | 0.04 | 0.020 | 0.706 |
| 5-Aug-03 | 1337 | 27.1 | 8.19 | 125 | 8.16 | 290 | 0.04 | NR | NR |
| 5-Aug-03 | 1355 | 27.5 | 7.92 | 43 | 7.74 | 88 | 0.40 | NR | NR |
| 5-Aug-03 | 1410 | 27.4 | 7.87 | 24 | 7.67 | 66 | 0.36 | 1.231 | 43.472 |
| 5-Aug-03 | 1425 | 27.1 | 7.84 | 81 | 7.54 | 410 | 0.80 | NR | NR |
| 5-Aug-03 | 1440 | 27.8 | 7.96 | 72 | 8.16 | 210 | 1.20 | NR | NR |
| 5-Aug-03 | 1455 | 27.5 | 8.43 | 6 | 8.69 | 84 | 0.80 | NR | NR |
| 5-Aug-03 | 1505 | 27.3 | 8.24 | 10 | 7.83 | 64 | 0.30 | NR | NR |
| 5-Aug-03 | 1525 | 27.3 | 8.14 | 14 | 7.61 | 49 | 0.20 | 0.462 | 16.315 |
| 5-Aug-03 | 1540 | 27.3 | 8.07 | 21 | 6.85 | 45 | NR | NR | NR |
| 5-Aug-03 | 1554 | 27.2 | 7.7 | 29 | 7.01 | 31 | 0.10 | 0.168 | 5.933 |
| **Max** | | 27.8 | 8.43 | 274 | 10.50 | 410 | 1.20 | 1.231 | 43.472 |
| **Min** | | 26.9 | 7.7 | 6 | 6.85 | 4.4 | 0.04 | 0.020 | 0.706 |

## Appendix B-4

## Organic Constituents Detected in Tumblin Creek Stormwater

### POLYCYCLIC AROMATIC HYDROCARBONS

| TUMBLIN CREEK AT SW 5TH AVE | TUMSW5 SS#1 8/5/2003 12:20 | TUMSW5 SS#2 8/5/2003 13:49 | TUMSW5 SS#3 8/5/2003 14:15 | TUMSW5 SS#4 8/5/2003 15:00 | TUMSW5 SS#5 8/5/2003 15:45 |
|---|---|---|---|---|---|
| **Parameter** | ug/L | ug/L | ug/L | ug/L | ug/L |
| Benzo (a) anthracene | <0.20 | <0.20 | 1.1 | <0.20 | <0.20 |
| Benzo (a) pyrene | <0.20 | <0.20 | 1.4 | <0.20 | <0.20 |
| Benzo (b) fluoranthene | <0.20 | 0.32 | 1.7 | <0.20 | <0.20 |
| Benzo (g,h,i) pyrene | <0.20 | <0.20 | 1.2 | <0.20 | <0.20 |
| Benzo (k) fluoranthene | <0.20 | <0.20 | 1.7 | <0.20 | <0.20 |
| Chrysene | <0.20 | <0.20 | 2 | <0.20 | <0.20 |
| Dibenzo (a,h) antrhacene | <0.20 | <0.20 | 0.35 | <0.20 | <0.20 |
| Fluoranthene | <0.20 | 0.47 | 3.4 | 0.35 | <0.20 |
| Indeno (1,2,3-cd) pyrene | <0.20 | <0.20 | 1.1 | <0.20 | <0.20 |
| Phenanthrene | <0.20 | 0.2 | 1.6 | 0.2 | <0.20 |
| Pyrene | <0.20 | 0.43 | 3.1 | 0.29 | <0.20 |

| TUMBLIN CREEK AT DEPOT AVE | TUMDEPOT SS#1 8/5/2003 12:45 | TUMDEPOT SS#2 8/5/2003 13:49 | TUMDEPOT SS#3 8/5/2003 14:15 | TUMDEPOT SS#4 8/5/2003 15:00 | TUMDEPOT SS#5 8/5/2003 15:45 |
|---|---|---|---|---|---|
| **Parameter** | ug/L | ug/L | ug/L | ug/L | ug/L |
| Benzo (a) anthracene | <0.20 | <0.20 | 0.91 | <0.20 | <0.20 |
| Benzo (a) pyrene | <0.20 | <0.20 | 1.2 | <0.20 | <0.20 |
| Benzo (b) fluoranthene | <0.20 | <0.20 | 1.9 | 0.2 | <0.20 |
| Benzo (g,h,i) pyrene | <0.20 | <0.20 | 1.1 | <0.20 | <0.20 |
| Benzo (k) fluoranthene | <0.20 | <0.20 | 1.2 | <0.20 | <0.20 |
| Chrysene | <0.20 | <0.20 | 1.8 | 0.26 | <0.20 |
| Dibenzo (a,h) antrhacene | <0.20 | <0.20 | 0.32 | <0.20 | <0.20 |
| Fluoranthene | <0.20 | <0.20 | 2.9 | 0.46 | 0.27 |
| Indeno (1,2,3-cd) pyrene | <0.20 | <0.20 | 1 | <0.20 | <0.20 |
| Phenanthrene | <0.20 | <0.20 | 1.2 | 0.22 | <0.20 |
| Pyrene | <0.20 | <0.20 | 2.7 | 0.42 | 0.24 |

| TUMBLIN CREEK AT 441 | TUM441 SS#1 8/5/2003 12:35 | TUM441 SS#2 8/5/2003 13:37 | TUM441 SS#3 8/5/2003 14:14 | TUM441 SS#4 8/5/2003 15:05 | TUM441 SS#5 8/5/2003 15:50 |
|---|---|---|---|---|---|
| **Parameter** | ug/L | ug/L | ug/L | ug/L | ug/L |
| Benzo (a) anthracene | <0.20 | 0.73 | <0.20 | <0.20 | <0.20 |
| Benzo (a) pyrene | <0.20 | 0.97 | <0.20 | <0.20 | <0.20 |
| Benzo (b) fluoranthene | 0.22 | 1.6 | <0.20 | 0.29 | <0.20 |
| Benzo (g,h,i) pyrene | <0.20 | 0.98 | <0.20 | 0.2 | <0.20 |
| Benzo (k) fluoranthene | <0.20 | 1.2 | <0.20 | 0.28 | <0.20 |
| Chrysene | <0.20 | 1.7 | 0.23 | 0.35 | 0.22 |
| Dibenzo (a,h) antrhacene | <0.20 | 0.27 | <0.20 | <0.20 | <0.20 |
| Fluoranthene | 0.47 | 2.8 | 0.59 | 0.56 | 0.36 |
| Indeno (1,2,3-cd) pyrene | <0.20 | 0.89 | <0.20 | <0.20 | <0.20 |
| Phenanthrene | 0.2 | 1.3 | 0.3 | 0.24 | <0.20 |
| Pyrene | 0.42 | 2.6 | 0.47 | 0.52 | 0.33 |

**Note:** It should be noted that Volatile Organic Compounds consisting of Benzene (1.7ug/1 TUMDEPOT SS#5) and Tetrachlorethene (1.0 ug/1 TUM441 SS#2) were found.

## Appendix B-5

### ICP Metals Detected in Tumblin Creek

**METALS CONCENTRATIONS IN STORMWATER**

| TUMBLIN CREEK AT SE 5TH AVE | TUMSW5 SS#1 8/5/2003 12:20 | TUMSW5 SS#2 8/5/2003 13:49 | TUMSW5 SS#3 8/5/2003 14:15 | TUMSW5 SS#4 8/5/2003 15:00 | TUMSW5 SS#5 8/5/2003 15:45 |
|---|---|---|---|---|---|
| **Parameter** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** |
| COPPER | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| IRON | 0.2 | 1.7 | 0.55 | 0.16 | 0.2 |
| LEAD | <0.0050 | 0.037 | 0.021 | 0.0051 | 0.0052 |
| ZINC | <0.020 | 0.14 | 0.062 | 0.022 | 0.02 |

| TUMBLIN CREEK AT DEPOT AVE | TUMDEPOT SS#1 8/5/2003 12:45 | TUMDEPOT SS#2 8/5/2003 13:49 | TUMDEPOT SS#3 8/5/2003 14:15 | TUMDEPOT SS#4 8/5/2003 15:00 | TUMDEPOT SS#5 8/5/2003 15:45 |
|---|---|---|---|---|---|
| **Parameter** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** |
| COPPER | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| IRON | 0.25 | 0.41 | 1.2 | 0.3 | 0.24 |
| LEAD | <0.0050 | 0.01 | 0.032 | 0.012 | 0.0076 |
| ZINC | <0.020 | 0.024 | 0.092 | 0.034 | 0.025 |

| TUMBLIN CREEK AT 441 | TUM441 SS#1 8/5/2003 12:35 | TUM441 SS#2 8/5/2003 13:37 | TUM441 SS#3 8/5/2003 14:14 | TUM441 SS#4 8/5/2003 15:05 | TUM441 SS#5 8/5/2003 15:50 |
|---|---|---|---|---|---|
| **Parameter** | **ug/L** | **ug/L** | **ug/L** | **ug/L** | **ug/L** |
| COPPER | <0.020 | 0.033 | <0.020 | <0.020 | <0.020 |
| IRON | 0.15 | 12 | 2.5 | 1.6 | 0.67 |
| LEAD | <0.0050 | 0.12 | 0.017 | 0.028 | 0.012 |
| ZINC | <0.020 | 2.2 | 0.089 | 0.078 | 0.034 |

## Appendix B-6

### Fecal Coliform Concentrations Detected in Tumblin Creek

**FECAL COLIFORM CONCENTRATION IN STORM WATER**

| Station Name | Date | Time | FECAL COLIFORM |
|---|---|---|---|
| **TUMBLIN CREEK AT SE 5TH AVE** | | | |
| | | | col/100mL |
| TUMSW5 | 8/5/2003 | 1220 | 4,900 |
| TUMSW5 | 8/5/2003 | 1330 | 92,000 |
| TUMSW5 | 8/5/2003 | 1510 | 54,000 |
| **TUMBLIN CREEK AT DEPOT AVE** | | | |
| TUMDEPOT | 8/5/2003 | 1245 | 2,300 |
| TUMDEPOT | 8/5/2003 | 1349 | 3,100 |
| TUMDEPOT | 8/5/2003 | 1415 | 92,000 |
| **TUMBLIN CREEK AT 441** | | | |
| TUM441 | 8/5/2003 | 1300 | 11,000 |
| TUM441 | 8/5/2003 | 1330 | 92,000 |
| TUM441 | 8/5/2003 | 1337 | 24,000 |
| TUM441 | 8/5/2003 | 1505 | 54,000 |

## Appendix B-7
## Summary Table of Parameters for TUMSW5

### Tumblin Creek at SW 5th Avenue

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN | TP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 20-Aug-03 | 1230 | 290 | 150 | 10 | 480 | 3.8 | 3.5 | 41 | 0.17 | 44 | <5.0 | <0.03 | 0.23 | 0.37 | 0.21 |
| 21-Aug-03 | 1740 | 150 | 93 | 15 | 250 | 13 | 5.9 | 9.9 | 0.19 | 21 | 22 | <0.03 | 0.31 | 1.2 | 0.26 |
| 21-Aug-03 | 1750 | 100 | 58 | 30 | 150 | 24 | 14 | 6 | 0.17 | 12 | 18 | <0.03 | 0.45 | 1.4 | 0.18 |
| 21-Aug-03 | 1800 | 86 | 53 | 30 | 130 | 21 | 14 | 4.3 | 0.13 | 7.5 | 19 | <0.03 | 0.48 | 1.3 | 0.14 |
| 21-Aug-03 | 1820 | 96 | 56 | 30 | 140 | 20 | 13 | 4.2 | 0.20 | 7.3 | 30 | <0.03 | 0.46 | 1.0 | 0.15 |
| 21-Aug-03 | 1830 | 99 | 53 | 30 | 140 | 11 | 13 | 4.7 | 0.13 | 7.2 | 7 | <0.03 | 0.46 | 0.96 | 0.10 |
| **Max** | | 290 | 150 | 30 | 480 | 24 | 14 | 41 | 0.19 | 44 | 30 | N/A | 0.48 | 1.4 | 0.26 |
| **Min** | | 86 | 53 | 10 | 130 | 3.8 | 3.5 | 4.2 | 0.13 | 7.2 | <5.0 | N/A | 0.23 | 0.37 | 0.10 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 21-Aug-03 | 1245 | 26.0 | 7.43 | 481 | 5.23 | 1.2 | 7.55 | 0.001 | 0.035 |
| 21-Aug-03 | 1430 | 26.7 | 7.17 | 423 | 5.20 | 2.0 | 7.52 | 0.002 | 0.071 |
| 21-Aug-03 | 1730 | 27.9 | 7.52 | 344 | 5.36 | NR | NR | NR | NR |
| 21-Aug-03 | 1745 | 29.4 | 7.58 | 173 | 6.66 | 38 | 7.80 | 0.106 | 3.743 |
| 21-Aug-03 | 1750 | NR | NR | NR | NR | NR | 8.02 | NR | NR |
| 21-Aug-03 | 1800 | 30.1 | 7.71 | 121 | 6.22 | 35 | 7.80 | 0.048 | 1.695 |
| 21-Aug-03 | 1815 | 29.8 | 7.64 | 125 | 5.70 | NR | NR | NR | NR |
| 21-Aug-03 | 1820 | NR | NR | NR | NR | 26 | 7.64 | 0.029 | 1.024 |
| 21-Aug-03 | 1830 | 29.2 | 7.32 | 129 | 4.63 | NR | NR | NR | NR |
| **Max** | | 30.1 | 7.71 | 481 | 6.66 | 38 | 8.02 | 0.106 | 3.743 |
| **Min** | | 26.0 | 7.17 | 121 | 4.63 | 1.2 | 7.52 | 0.001 | 0.035 |

## Appendix B-8
## Summary Table of Parameters for TUMDEPOT

### Tumblin Creek at Depot Avenue

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN | TP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 20-Aug-03 | 1245 | 240 | 89 | 10 | 390 | 32 | 4.4 | 41 | 0.17 | 45 | 27 | <0.030 | 0.30 | 0.34 | 0.34 |
| 21-Aug-03 | 1740 | 200 | 93 | 15 | 310 | 14 | 4.4 | 22 | 0.20 | 37 | 16 | <0.030 | 0.30 | 0.48 | 0.44 |
| 21-Aug-03 | 1750 | 190 | 95 | 15 | 320 | 33 | 6.1 | 22 | 0.31 | 38 | 58 | <0.030 | 0.26 | 0.45 | 0.45 |
| 21-Aug-03 | 1800 | 140 | 87 | 15 | 230 | 21 | 7.1 | 14 | 0.20 | 28 | 40 | <0.030 | 0.37 | 0.55 | 0.22 |
| 21-Aug-03 | 1820 | 130 | 69 | 25 | 190 | 17 | 12 | 9.8 | 0.16 | 21 | 36 | <0.030 | 0.41 | 0.54 | 0.32 |
| 21-Aug-03 | 1845 | 110 | 64 | 25 | 180 | 22 | 12 | 8.4 | 0.12 | 16 | 34 | <0.030 | 0.42 | 0.53 | 0.30 |
| **Max** | | 240 | 95 | 25 | 390 | 33 | 12 | 41 | 0.31 | 45 | 58 | <0.030 | 0.42 | 0.55 | 0.45 |
| **Min** | | 110 | 64 | 10 | 180 | 14 | 4.4 | 8.4 | 0.12 | 16 | 16 | <0.030 | 0.26 | 0.34 | 0.22 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 21-Aug-03 | 1245 | 26.0 | 7.29 | 385 | 5.94 | 33 | 12.14 | 0.011 | 0.388 |
| 21-Aug-03 | 1450 | 27.2 | 7.26 | 319 | 5.80 | NR | 12.12 | 0.008 | 0.283 |
| 21-Aug-03 | 1730 | 27.2 | 7.43 | 295 | 6.00 | 14 | NR | NR | NR |
| 21-Aug-03 | 1745 | 26.7 | 7.42 | 259 | 5.92 | 97 | 12.54 | 0.288 | 10.171 |
| 21-Aug-03 | 1800 | 28.8 | 7.59 | 191 | 6.77 | 35 | 12.60 | 0.168 | 5.933 |
| 21-Aug-03 | 1815 | 29.1 | 7.54 | 134 | 6.52 | NR | NR | NR | NR |
| 21-Aug-03 | 1830 | NR | NR | NR | NR | NR | 12.30 | 0.152 | 0.152 |
| 21-Aug-03 | 1845 | 29.2 | 7.52 | 105 | 6.20 | 55 | NR | NR | NR |
| **Max** | | 29.2 | 7.59 | 385 | 6.77 | 97 | 12.60 | 0.288 | 10.171 |
| **Min** | | 26.0 | 7.26 | 105 | 5.80 | 14 | 12.12 | 0.008 | 0.152 |

## Appendix B-9
## Summary Table of Parameters for TUM441

**Tumblin Creek at 441**

***Lab Data***

| Date | Time | TDS | Alk | Color | SpC (lab) | Turb (lab) | TOC | Chloride | σ-PO4 (T) | TP | Sulfate | TSS | $NH_3$ | $NO_x$ | TKN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | PCU | µmhos/cm | NTU | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| 20-Aug-03 | 1245 | 150 | 100 | 20 | 340 | 2.8 | 4.6 | 27 | 0.17 | 0.2 | 30 | <5.0 | <0.030 | 0.25 | 1.0 |
| 21-Aug-03 | 1740 | 180 | 100 | 20 | 310 | 12 | 5.8 | 19 | 0.29 | 0.24 | 32 | 26 | <0.030 | 0.23 | 0.71 |
| 21-Aug-03 | 1750 | 84 | 45 | 25 | 130 | 14 | 7.5 | 6 | 0.16 | 0.13 | 11 | 16 | <0.030 | 0.34 | 0.75 |
| 21-Aug-03 | 1800 | 90 | 47 | 25 | 140 | 8.1 | 6.9 | 6.5 | 0.16 | 0.13 | 12 | 6.5 | <0.030 | 0.33 | 0.61 |
| 21-Aug-03 | 1820 | 140 | 74 | 20 | 210 | 11 | 6.7 | 12 | 0.24 | 0.64 | 22 | <5 | <0.030 | 0.29 | 0.65 |
| 21-Aug-03 | 1845 | 160 | 70 | 20 | 260 | 120 | 5.2 | 15 | 0.57 | 1.5 | 27 | 100 | <0.030 | 0.28 | 0.8 |
| **Max** | | 180 | 100 | 25 | 340 | 120 | 7.5 | 27 | 0.57 | 1.5 | 32 | 100 | N/A | 0.34 | 0.8 |
| **Min** | | 84 | 45 | 20 | 130 | 2.8 | 4.6 | 6 | 0.16 | 0.13 | 11 | <5.0 | N/A | 0.23 | 0.61 |

***Field Data***

| Date | Time | Water Temp | pH | SpC | DO | Turb | Staff gage | Flow | Flow |
|---|---|---|---|---|---|---|---|---|---|
| | | °C | S. U. | µmhos/cm | mg/L | NTU | Feet | $m^3/s$ | cfs |
| 20-Aug-03 | 1205 | 27.2 | 8.23 | 302 | 10.23 | 3.1 | NR | NR | NR |
| 21-Aug-03 | 1507 | 28.6 | 8.55 | 322 | 10.1 | 5.4 | 0.23 | 0.019 | 0.671 |
| 21-Aug-03 | 1547 | 27.9 | 8.51 | 330 | 10.04 | 3.6 | 0.23 | NR | NR |
| 21-Aug-03 | 1605 | 27.7 | 8.47 | 337 | 9.59 | 4.3 | 0.24 | NR | NR |
| 21-Aug-03 | 1620 | 28.7 | 8.53 | 403 | 9.8 | 4.9 | 0.23 | NR | NR |
| 21-Aug-03 | 1635 | 28.7 | 8.59 | 349 | 10.08 | 4.1 | 0.23 | NR | NR |
| 21-Aug-03 | 1720 | 27.3 | 8.21 | 346 | 8.25 | 2.7 | 0.23 | NR | NR |
| 21-Aug-03 | 1735 | 27.1 | 8.00 | 340 | 7.32 | 12 | 0.40 | NR | NR |
| 21-Aug-03 | 1740 | NR | NR | NR | NR | NR | 0.80 | NR | NR |
| 21-Aug-03 | 1750 | 30.0 | 8.11 | 133 | 6.69 | 32 | 0.60 | NR | NR |
| 21-Aug-03 | 1800 | 30.2 | 7.96 | 238 | 6.43 | 21 | 0.50 | 0.078 | 2.755 |
| 21-Aug-03 | 1825 | 28.6 | 7.78 | 238 | 6.12 | 20 | 0.43 | NR | NR |
| 21-Aug-03 | 1845 | 26.9 | 7.84 | 302 | 6.88 | 62 | 1.00 | NR | NR |
| 21-Aug-03 | 1850 | NR | NR | NR | NR | NR | 0.95 | 0.210 | 7.416 |
| **Max** | | 30.2 | 8.59 | 403 | 10.23 | 62 | 1.00 | 0.210 | 7.416 |
| **Min** | | 26.9 | 7.78 | 133 | 6.12 | 2.7 | 0.23 | 0.019 | 0.671 |

## Appendix C-1

## Soil Boring Descriptions: "Old Landfill" Tumblin Creek Park

**SB1 0.1m - 0.3m** Dark brown silt, some organic material, broken bottle parts
**SB1 0.4m - 1.1m** Silt, medium-dark brown, some organic material is present with broken bottle parts
**SB1 1.1m** Black, organic material is present, particles are not as fine as silt, ash present as well as rocks and garbage
**SB1 1.33m @ water table** Very dark brown, large granules, organic material present as well as rocks and broken bottle parts

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**SB2 0m** Granules are fine, dark brown, organic material present, rocks and broken bottle parts
**SB2 1.16m** Well sorted, very dark brown and medium size granules, some ash, rocks and garbage
**SB2 1.26m** Well sorted, dark brown, some organic material is present, medium size granules, ash

---

**SB3 0m - 0.19m** Charcoal-colored, silt, organic material is present (actual plant is still in the bag), few rocks
**SB3 0.19m - 0.33m** Well sorted silt, medium dark brown, little organic material
**SB3 0.33m - 0.61m** Medium-dark brown/gray silt, little organic material, some rocks and broken bottle parts
**SB3 0.61m - 0.98m** Sand, light/tan, little to no organic material is present
**SB3 0.98m - 1.3m** Organic material, charcoal-colored, large granules, broken bottle parts

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**SB4 0m - 0.35m** Very dark brown/black silt, organic material, some rocks and broken bottle parts
**SB4 0.35m - 0.85m** Very dark brown/black, medium size granules, organic material is present, some rocks and garbage
**SB4 0.85m - 0.89m** Charcoal-colored clay, moist with rocks and broken bottle parts

---

**SB5 0m - 0.16m** Well sorted, charcoal-colored, medium size granules with organic material, ash is present
**SB5 0.16m - 0.33m** Charcoal-colored, moist sand
**SB5 0.33m - 0.83m** Sand, tan and moist
**SB5 0.83m - 1.2m** Medium-dark brown, moist sand
**SB5 1.2m** Dark brown, moist sand

---

**SB6 0m - 0.19m** Fine granules, medium-dark brown, organic material is present
**SB6 0.19m - 0.23m** Well sorted, tan sand, some rocks and garbage
**SB6 0.23m - 0.57m** Tan sand, moist
**SB6 0.57m - 0.79m** Tan sand, moist
**SB6 0.79m - 0.95m** Dark brown silt, organic material is present
**SB6 0.95m - 1.11m** Well sorted sand, light brown and tan
**SB6 1.11m - 1.49m** Charcoal-colored silt, moist, little organic material

---

**SB7 0m - 0.29m** Well sorted silt, dark brown with organic material present
**SB7 0.29m - 0.44m** Tan sand, moist
**SB7 0.44m - 0.58m** Dank brown sand, moist, organic material is present
**SB7 0.58m - 0.92m** Dark brown sand, moist

## Appendix C-2

## Summary of Soil Boring Field Observation: "Old Landfill" Tumblin Creek, Park, July 2003

### *Soil Boring 1*

The first boring was done on July 22, 2003 at 9:55 and was located 35 meters upstream of the culvert at Depot Avenue and 8 meters west of the center of the stream. The samples were taken at intervals of 0.1 to 0.25 meters (m) and 0.9 to1.1 m below the land surface. Images 4, 5 and 6 show the location, the debris and depth of the boring. Landfill debris was present at the land surface surrounding the soil boring location.

### *Soil Boring 2*

The boring was done on July 29, 2003 at 08:25 and was located 59 meters upstream of the culvert at Depot Avenue and 9.5 meters west of the center of the stream. Landfill material was located in the stream bed at this location (Image 9). The samples were taken at intervals of 0.18 to 0.36 m and 1.33 to1.43 m below the land surface. Images 7, 8, and 10 show the location of the boring. Landfill debris was present at the land surface surrounding the soil boring location.

### *Soil Boring 3*

The third boring was done on July 29, 2003 at 9:20 and was located 113.5 meters upstream of the culvert at Depot Avenue and 11 meters west of the center of the stream. The samples were taken at intervals of 0.19 to 0.33 meters (m) and 1.08 to1.26 m below the land surface. The water table was located at 1.3 m and there was still evidence of landfill material at that depth. Images 11, 12, 13 and 14 show the soil boring with landfill debris, depth of the boring and location. Some landfill debris was present at the land surface surrounding the soil boring location.

### *Soil Boring 4*

The fourth boring was done on July 29, 2003 at 10:18 and was located 89 meters upstream of the culvert at Depot Avenue and 4.4 meters west of the center of the stream. The samples were taken at intervals of 0.22 to 0.35 m and 0.59 to 0.74 m below the land surface. Images 15, 16 and 17 show the debris and depth of the boring and the location. The water table was encountered at 0.89 meters along with glass brick and other landfill material. Landfill debris was present at the land surface surrounding the soil boring location.

**Appendix C – Table 2. (Continued.)**

**Summary of Soil Boring Field Observation: "Old Landfill" Tumblin Creek, Park, July 2003**

***Soil Boring 5***

The fifth boring was done on July 29, 2003 at 10:50 and was located 75.6 m upstream of the culvert at Depot Avenue and 8.5 m east of the center of the stream. The samples were taken at intervals of 0.16 to 0.32 m and 0.88 to 0.98 m below the land surface. The water table was found at a depth of 1.15 m. No landfill material was present in the soil boring. Images 18, 19 and 20 show the location of the soil boring.

***Soil Boring 6***

The sixth boring was begun on July 29, 2003 at 11:20 and was located 37 meters upstream of the culvert at Depot Avenue and 4.7 meters east of the center of the stream. The samples were taken at intervals of 0.23 to 0.39 m and 0.79 to 0.85 m below the land surface. At 1.49 m the water table was encountered. Images 21, 22, 23 and 24 show the location and depth of the boring. Landfill debris was not present in the soil boring location.

***Soil Boring 7***

The final boring, which is the reference site, was done on July 29, 2003 at 11:57 and was located 7.9 meters downstream of the foot bridge and 10.4 meters east of the center of the stream. The samples were taken at intervals of 0.29 to 0.39 m and 0.6 to 0.73 m below the land surface. Images 25 and 26 show the location and the depth of the soil boring. At 0.92 m below the land surface the water table was encountered. No landfill debris was found at this location.

## Appendix C-3

## Hydrocarbons Dectected in Soils at the "Old Landfill" (Tumblin Creek Park)

POLYCYCLIC AROMATICS

| Parameter | SB1 0.1m-0.25m Core(ug/kg dw) | SB1 0.9m-1.1m Core(ug/kg dw) | SB2 0.18m-0.36m Core(ug/kg dw) | SCTL (mg/kg)* |
|---|---|---|---|---|
| Acenaphthene | <41 | <170 | <8.8 | not applicable |
| Acenaphthylene | 330 | 1400 | 31 | 1100 |
| Anthracene | 300 | 1100 | 31 | 18000 |
| **Benzo(a) anthracene** | **930** | **3300** | **220** | **1.4** |
| **Benzo(a) pyrene** | **1400** | **4700** | **310** | **0.1** |
| **Benzo(b) fluoranthene** | **1700** | **5100** | **410** | **1.4** |
| Benzo(g,h,i) perylene | 2400 | 4300 | 200 | 2300 |
| Benzo(k) fluoranthene | 1100 | 4200 | 310 | 15 |
| Chrysene | 1400 | 4400 | 370 | 140 |
| **Dibenzo(a,h) anthracene** | **460** | **1000** | **57** | **0.1** |
| Fluoranthene | 2600 | 9100 | 540 | 2900 |
| Fluorene | 76 | 280 | 9.2 | 2200 |
| **Indeno(1,2,3,-cd) pyrene** | **1200** | **3200** | **180** | **1.5** |
| Naphthalene | 72 | 300 | 13 | 40 |
| Phenanthrene | 1900 | 7600 | 340 | 2000 |
| Pyrene | 2400 | 8400 | 740 | 2200 |
| 1-Methylnaphthalene | 63 | 220 | 10 | 68 |
| 2-Methylnaphthalene | 41 | 200 | 9.8 | 80 |

| Parameter | SB2 1.33m-1.43m Core(ug/kg dw) | SB3 0.19m-0.33m Core(ug/kg dw) | SB3 1.08m-1.28m Core(ug/kg dw) | SCTL (mg/kg) |
|---|---|---|---|---|
| Acenaphthene | <8.9 | <8.0 | <8.4 | not applicable |
| Acenaphthylene | 27 | 14 | 8.5 | 1100 |
| Anthracene | 29 | 11 | 12 | 18000 |
| **Benzo(a) anthracene** | **190** | **76** | **73** | **1.4** |
| **Benzo(a) pyrene** | **260** | **97** | **94** | **0.1** |
| **Benzo(b) fluoranthene** | **290** | **110** | **110** | **1.4** |
| Benzo(g,h,i) perylene | 180 | 61 | 64 | 2300 |
| Benzo(k) fluoranthene | 240 | 96 | 110 | 15 |
| Chrysene | 290 | 99 | 96 | 140 |
| **Dibenzo(a,h) anthracene** | **46** | **19** | **20** | **0.1** |
| Fluoranthene | 390 | 120 | 130 | 2900 |
| Fluorene | <8.9 | <8.0 | <8.4 | not applicable |
| **Indeno(1,2,3,-cd) pyrene** | **150** | **55** | **56** | **1.5** |
| Naphthalene | <8.9 | <8.0 | <8.4 | not applicable |
| Phenanthrene | 220 | 51 | 60 | 2000 |
| Pyrene | 670 | 180 | 170 | 2200 |
| 1-Methylnaphthalene | <8.9 | <8.0 | <8.4 | not applicable |
| 2-Methylnaphthalene | <8.9 | <8.0 | <8.4 | not applicable |

*SCTL - Soil Cleanup Target Level, FAC Chapter 62-777, Contaminant Cleanup Target Levels. Effective 8-5-99 (Table II)

## Appendix C - Table 3. (Continued.)

**Hydrocarbons Dectected in Soils at the "Old Landfill" (Tumblin Creek Park), Continued…**

| Parameter | SB4 0.20m-0.35m Core(ug/kg dw) | SB4 0.59m-0.74m Core(ug/kg dw) | SB5 0.16m-0.32m Core(ug/kg dw) | SCTL (mg/kg) |
|---|---|---|---|---|
| Acenaphthene | <170 | <45 | <8.0 | not applicable |
| Acenaphthylene | <170 | 51 | <8.0 | 1100 |
| Anthracene | 260 | 100 | <8.0 | 18000 |
| **Benzo(a) anthracene** | **2100** | **610** | **<8.0** | **1.4** |
| **Benzo(a) pyrene** | **2300** | **720** | **10** | **0.1** |
| **Benzo(b) fluoranthene** | **3300** | **910** | **15** | **1.4** |
| Benzo(g,h,i) perylene | 1200 | 320 | 8 | 2300 |
| Benzo(k) fluoranthene | 2500 | 720 | 12 | 15 |
| Chrysene | 3000 | 800 | 11 | 140 |
| **Dibenzo(a,h) anthracene** | **390** | **110** | **<8.0** | **0.1** |
| Fluoranthene | 5000 | 1200 | 13 | 2900 |
| Fluorene | <170 | <45 | <8.0 | not applicable |
| **Indeno(1,2,3,-cd) pyrene** | **1300** | **340** | **<8.0** | **1.5** |
| Naphthalene | <170 | <45 | <8.0 | not applicable |
| Phenanthrene | 1900 | 540 | <8.0 | 2000 |
| Pyrene | 4700 | 1200 | 17 | 2200 |
| 1-Methylnaphthalene | <170 | <45 | <8.0 | not applicable |
| 2-Methylnaphthalene | <170 | <45 | <8.0 | not applicable |

| Parameter | SB5 0.88m-0.98m Core(ug/kg dw) | SB6 0.23m-0.39m Core(ug/kg dw) | SB6 0.79m-0.85m Core(ug/kg dw) | SCTL (mg/kg) |
|---|---|---|---|---|
| Acenaphthene | <7.9 | <7.1 | 10 | 1900 |
| Acenaphthylene | <7.9 | <7.1 | 29 | 1100 |
| Anthracene | <7.9 | <7.1 | 36 | 18000 |
| **Benzo(a) anthracene** | **<7.9** | **<7.1** | **160** | **1.4** |
| **Benzo(a) pyrene** | **<7.9** | **7.6** | **180** | **0.1** |
| **Benzo(b) fluoranthene** | **<7.9** | **8.6** | **230** | **1.4** |
| Benzo(g,h,i) perylene | <7.9 | <7.1 | 110 | 2300 |
| Benzo(k) fluoranthene | <7.9 | 8.2 | 170 | 15 |
| Chrysene | <7.9 | 8.4 | 200 | 140 |
| **Dibenzo(a,h) anthracene** | **<7.9** | **<7.1** | **35** | **0.1** |
| Fluoranthene | <7.9 | 8 | 320 | 2900 |
| Fluorene | <7.9 | <7.1 | 10 | 2200 |
| **Indeno(1,2,3,-cd) pyrene** | **<7.9** | **<7.1** | **110** | **1.5** |
| Naphthalene | <7.9 | <7.1 | <9.3 | not applicable |
| Phenanthrene | <7.9 | <7.1 | 140 | 2000 |
| Pyrene | <7.9 | 12 | 310 | 2200 |
| 1-Methylnaphthalene | <7.9 | <7.1 | 10 | 68 |
| 2-Methylnaphthalene | <7.9 | <7.1 | 13 | 80 |

## Appendix C - Table 3. (Continued.)

**Hydrocarbons Dectected in Soils at the "Old Landfill" (Tumblin Creek Park), Continued…**

| Parameter | SB7 0.29m-0.39m Core(ug/kg dw) | SB7 0.6m-0.73m Core(ug/kg dw) | SCTL (mg/kg) |
|---|---|---|---|
| Acenaphthene | <7.1 | <8.6 | not applicable |
| Acenaphthylene | <7.1 | <8.6 | not applicable |
| Anthracene | <7.1 | <8.6 | not applicable |
| **Benzo(a) anthracene** | **<7.1** | **<8.6** | **not applicable** |
| **Benzo(a) pyrene** | **<7.1** | **<8.6** | **not applicable** |
| **Benzo(b) fluoranthene** | **<7.1** | **<8.6** | **not applicable** |
| Benzo(g,h,i) perylene | <7.1 | <8.6 | not applicable |
| Benzo(k) fluoranthene | <7.1 | <8.6 | not applicable |
| Chrysene | <7.1 | <8.6 | not applicable |
| **Dibenzo(a,h) anthracene** | **<7.1** | **<8.6** | **not applicable** |
| Fluoranthene | <7.1 | <8.6 | not applicable |
| Fluorene | <7.1 | <8.6 | not applicable |
| Indeno(1,2,3,-cd) pyrene | <7.1 | <8.6 | not applicable |
| Naphthalene | <7.1 | <8.6 | not applicable |
| Phenanthrene | <7.1 | <8.6 | not applicable |
| Pyrene | <7.1 | <8.6 | not applicable |
| 1-Methylnaphthalene | <7.1 | <8.6 | not applicable |
| 2-Methylnaphthalene | <7.1 | <8.6 | not applicable |

## Appendix C- 4
## Hydrocarbons Dectected in Soils at the "Old Landfill" (Tumblin Creek Park)

**POLYCYCLIC AROMATICS**

| Parameter | SB1 0.1m-0.25m Core(ug/kg dw) | SB1 0.9m-1.1m Core(ug/kg dw) | SB2 0.18m-0.36m Core(ug/kg dw) | SCTL (mg/kg)* |
|---|---|---|---|---|
| Acenaphthene | <41 | <170 | <8.8 | not applicable |
| Acenaphthylene | 330 | 1400 | 31 | 1100 |
| Anthracene | 300 | 1100 | 31 | 18000 |
| Benzo(a) anthracene | 930 | 3300 | 220 | 1.4 |
| Benzo(a) pyrene | 1400 | 4700 | 310 | 0.1 |
| Benzo(b) fluoranthene | 1700 | 5100 | 410 | 1.4 |
| Benzo(g,h,i) perylene | 2400 | 4300 | 200 | 2300 |
| Benzo(k) fluoranthene | 1100 | 4200 | 310 | 15 |
| Chrysene | 1400 | 4400 | 370 | 140 |
| Dibenzo(a,h)anthracene | 460 | 1000 | 57 | 0.1 |
| Fluoranthene | 2600 | 9100 | 540 | 2900 |
| Fluorene | 76 | 280 | 9.2 | 2200 |
| Indeno(1,2,3,-cd) pyrene | 1200 | 3200 | 180 | 1.5 |
| Naphthalene | 72 | 300 | 13 | 40 |
| Phenanthrene | 1900 | 7600 | 340 | 2000 |
| Pyrene | 2400 | 8400 | 740 | 2200 |
| 1-Methylnaphthalene | 63 | 220 | 10 | 68 |
| 2-Methylnaphthalene | 41 | 200 | 9.8 | 80 |

| Parameter | SB2 1.33m-1.43m Core(ug/kg dw) | SB3 0.19m-0.33m Core(ug/kg dw) | SB3 1.08m-1.28m Core(ug/kg dw) | SCTL (mg/kg) |
|---|---|---|---|---|
| Acenaphthene | <8.9 | <8.0 | <8.4 | not applicable |
| Acenaphthylene | 27 | 14 | 8.5 | 1100 |
| Anthracene | 29 | 11 | 12 | 18000 |
| Benzo(a) anthracene | 190 | 76 | 73 | 1.4 |
| Benzo(a) pyrene | 260 | 97 | 94 | 0.1 |
| Benzo(b) fluoranthene | 290 | 110 | 110 | 1.4 |
| Benzo(g,h,i) perylene | 180 | 61 | 64 | 2300 |
| Benzo(k) fluoranthene | 240 | 96 | 110 | 15 |
| Chrysene | 290 | 99 | 96 | 140 |
| Dibenzo(a,h)anthracene | 46 | 19 | 20 | 0.1 |
| Fluoranthene | 390 | 120 | 130 | 2900 |
| Fluorene | <8.9 | <8.0 | <8.4 | not applicable |
| Indeno(1,2,3,-cd) pyrene | 150 | 55 | 56 | 1.5 |
| Naphthalene | <8.9 | <8.0 | <8.4 | not applicable |
| Phenanthrene | 220 | 51 | 60 | 2000 |
| Pyrene | 670 | 180 | 170 | 2200 |
| 1-Methylnaphthalene | <8.9 | <8.0 | <8.4 | not applicable |
| 2-Methylnaphthalene | <8.9 | <8.0 | <8.4 | not applicable |

*SCTL - Soil Cleanup Target Level, FAC Chapter 62-777, Contaminant Cleanup Target Levels. Effective 8-5-99 (Table II)

## Appendix C- 4
## Hydrocarbons Dectected in Soils at the "Old Landfill" (Tumblin Creek Park)

### POLYCYCLIC AROMATICS

| Parameter | SB4 0.20m-0.35m Core(ug/kg dw) | SB4 0.59m-0.74m Core(ug/kg dw) | SB5 0.16m-0.32m Core(ug/kg dw) | SCTL (mg/kg) |
|---|---|---|---|---|
| Acenaphthene | <170 | <45 | <8.0 | not applicable |
| Acenaphthylene | <170 | 51 | <8.0 | 1100 |
| Anthracene | 260 | 100 | <8.0 | 18000 |
| Benzo(a) anthracene | 2100 | 610 | <8.0 | 1.4 |
| Benzo(a) pyrene | 2300 | 720 | 10 | 0.1 |
| Benzo(b) fluoranthene | 3300 | 910 | 15 | 1.4 |
| Benzo(g,h,i) perylene | 1200 | 320 | 8 | 2300 |
| Benzo(k) fluoranthene | 2500 | 720 | 12 | 15 |
| Chrysene | 3000 | 800 | 11 | 140 |
| Dibenzo(a,h)anthracene | 390 | 110 | <8.0 | 0.1 |
| Fluoranthene | 5000 | 1200 | 13 | 2900 |
| Fluorene | <170 | <45 | <8.0 | not applicable |
| Indeno(1,2,3,-cd) pyrene | 1300 | 340 | <8.0 | 1.5 |
| Naphthalene | <170 | <45 | <8.0 | not applicable |
| Phenanthrene | 1900 | 540 | <8.0 | 2000 |
| Pyrene | 4700 | 1200 | 17 | 2200 |
| 1-Methylnaphthalene | <170 | <45 | <8.0 | not applicable |
| 2-Methylnaphthalene | <170 | <45 | <8.0 | not applicable |

| Parameter | SB5 0.88m-0.98m Core(ug/kg dw) | SB6 0.23m-0.39m Core(ug/kg dw) | SB6 0.79m-0.85m Core(ug/kg dw) | SCTL (mg/kg) |
|---|---|---|---|---|
| Acenaphthene | <7.9 | <7.1 | 10 | 1900 |
| Acenaphthylene | <7.9 | <7.1 | 29 | 1100 |
| Anthracene | <7.9 | <7.1 | 36 | 18000 |
| Benzo(a) anthracene | <7.9 | <7.1 | 160 | 1.4 |
| Benzo(a) pyrene | <7.9 | 7.6 | 180 | 0.1 |
| Benzo(b) fluoranthene | <7.9 | 8.6 | 230 | 1.4 |
| Benzo(g,h,i) perylene | <7.9 | <7.1 | 110 | 2300 |
| Benzo(k) fluoranthene | <7.9 | 8.2 | 170 | 15 |
| Chrysene | <7.9 | 8.4 | 200 | 140 |
| Dibenzo(a,h)anthracene | <7.9 | <7.1 | 35 | 0.1 |
| Fluoranthene | <7.9 | 8 | 320 | 2900 |
| Fluorene | <7.9 | <7.1 | 10 | 2200 |
| Indeno(1,2,3,-cd) pyrene | <7.9 | <7.1 | 110 | 1.5 |
| Naphthalene | <7.9 | <7.1 | <9.3 | not applicable |
| Phenanthrene | <7.9 | <7.1 | 140 | 2000 |
| Pyrene | <7.9 | 12 | 310 | 2200 |
| 1-Methylnaphthalene | <7.9 | <7.1 | 10 | 68 |
| 2-Methylnaphthalene | <7.9 | <7.1 | 13 | 80 |

## Appendix C- 4
## Hydrocarbons Dectected in Soils at the "Old Landfill" (Tumblin Creek Park)

**POLYCYCLIC AROMATICS**

| Parameter | SB7 0.29m-0.39m Core(ug/kg dw) | SB7 0.6m-0.73m Core(ug/kg dw) | SCTL (mg/kg) |
|---|---|---|---|
| Acenaphthene | <7.1 | <8.6 | not applicable |
| Acenaphthylene | <7.1 | <8.6 | not applicable |
| Anthracene | <7.1 | <8.6 | not applicable |
| Benzo(a) anthracene | <7.1 | <8.6 | not applicable |
| Benzo(a) pyrene | <7.1 | <8.6 | not applicable |
| Benzo(b) fluoranthene | <7.1 | <8.6 | not applicable |
| Benzo(g,h,i) perylene | <7.1 | <8.6 | not applicable |
| Benzo(k) fluoranthene | <7.1 | <8.6 | not applicable |
| Chrysene | <7.1 | <8.6 | not applicable |
| Dibenzo(a,h)anthracene | <7.1 | <8.6 | not applicable |
| Fluoranthene | <7.1 | <8.6 | not applicable |
| Fluorene | <7.1 | <8.6 | not applicable |
| Indeno(1,2,3,-cd) pyrene | <7.1 | <8.6 | not applicable |
| Naphthalene | <7.1 | <8.6 | not applicable |
| Phenanthrene | <7.1 | <8.6 | not applicable |
| Pyrene | <7.1 | <8.6 | not applicable |
| 1-Methylnaphthalene | <7.1 | <8.6 | not applicable |
| 2-Methylnaphthalene | <7.1 | <8.6 | not applicable |

Image 1. Test boring with landfill debris present at the land surface.

Image 2. Test boring with landfill debris present at the land surface.

Image 3. Landfill debris exposed at the land surface near the test boring location.

Image 4. Soil boring 1, location from Tumblin Creek.

Image 5. Soil Boring 1 depth with samples collected.

Image 6. Soil Boring 1 location with samples collected.

Image 7. Soil Boring 2.

Image 8. Soil Boring 2 Proximity to Tumblin Creek.

Image 9. Soil Boring 2, Landfill Debris in Tumblin Creek.

Image 10. Soil Boring 2, Proximity to Tumblin Creek.

Image 11. Soil Boring 3, Depth of Boring and Landfill Debris Present in Soil.

Image 12. Soil Boring 3, Depth.

Image 13. Soil Boring 3, Proximity to Tumblin Creek

Image 14. Soil Boring 3, Proximity to Tumblin Creek

Image 15. Soil Boring 4, Depth of Boring and Samples Collected

Image 16. Soil Boring 4, Proximity to Tumblin Creek

Image 17. Soil Boring 4, Proximity to Tumblin Creek

Image 18. Soil Boring 5, Looking West Toward Tumblin Creek

Image 19. Soil Boring 5, Looking East Toward SW 6th Street

Image 20. Soil Boring 5, Looking SE Toward the intersection of SW 6th St. and Depot Ave.

Image 21. Soil Boring 6, Proximity to Tumblin Creek and Collection of Soil Sample

Image 22. Soil Boring 6, Collection of Soil Sample

Image 23. Soil Boring 6, East side of Tumblin Creek, No Landfill Material Encountered

Image 24. Soil Boring 6, Measuring Soil Profile

Image 25. Soil Boring 7, Proximity to Tumblin Creek

Image 26. Soil Boring 7, Depth of Soil Boring