United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR10001 | Project: Cordell Hull | Location: Cumberland River, Mile 313.2

State: Tennessee | Latitude: 36º 17" 13' | Quad: Carthage, TN
County: Smith | Longitude: 85º 56" 27' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 445.3 ft | Stream Flow = 1800 cfs

| Results of Laboratory Analyses | | | Profile Measurements | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Depth | Water Temp | Water Temp | Dis Oxygen | Dis Oxygen | Spec Cond | pH | Chloro a F |
| Sample Depth ft | | 0.0 | ft | deg C | deg F | mg/l | % sat | umho/cm | units | ug/l |
| Alkalinity, Tot | mg/L | 68 | 0.0 | 22.6 | 72.7 | 8.7 | 100.8 | 196.0 | 7.5 | |
| Alkalinity, Phenol | mg/L | 0 | | | | | | | | |
| Solids, Tot | mg/L | 187 | | | | | | | | |
| Solids, Tot Diss | mg/L | 187 | | | | | | | | |
| Solids, Tot Susp | mg/L | <0.250 | | | | | | | | |
| Solids, Vol | mg/L | 107 | | | | | | | | |
| Solids, Vol Diss | mg/L | 87 | | | | | | | | |
| Solids, Vol Susp | mg/L | 20.0 | | | | | | | | |
| Ammonia N, Tot | mg/L | <0.200 | | | | | | | | |
| Kjeldahl N, Tot | mg/L | 0.260 | | | | | | | | |
| NO3+NO2, Tot | mg/L | 0.167 | | | | | | | | |
| Phosphorus, Tot | mg/L | 0.0336 | | | | | | | | |
| Phosphorus, Diss | mg/L | 0.0241 | | | | | | | | |
| OrthoPhosphate, D | mg/L | <0.0500 | | | | | | | | |
| Organic Carbon, T | mg/L | 1.90 | | | | | | | | |
| Hardness, Tot | mg/L | 84.9 | | | | | | | | |
| Sulfate, Tot | mg/L | 25.9 | | | | | | | | |
| Calcium, Tot | mg/L | 23.8 | | | | | | | | |
| Magnesium, Tot | mg/L | 6.19 | | | | | | | | |
| Sodium, Tot | mg/L | 4.60 | | | | | | | | |
| Potassium, Tot | mg/L | 1.39 | | | | | | | | |
| Chloride, Tot | mg/L | 4.15 | | | | | | | | |
| Arsenic, Tot | ug/L | 0.9 | | | | | | | | |
| Barium, Tot | ug/L | 25.7 | | | | | | | | |
| Beryllium, Tot | ug/L | <0.5 | | | | | | | | |
| Cadmium, Tot | ug/L | <0.5 | | | | | | | | |
| Chromium, Tot | ug/L | 0.6 | | | | | | | | |
| Cobalt, Tot | ug/L | <0.5 | | | | | | | | |
| Copper, Tot | ug/L | <0.5 | | | | | | | | |
| Iron, Tot | ug/L | 135.0 | | | | | | | | |
| Iron, Diss | ug/L | 23.8 | | | | | | | | |
| Lead, Tot | ug/L | <0.5 | | | | | | | | |
| Lead, Diss | ug/L | 1.3 | | | | | | | | |
| Manganese, Tot | ug/L | 171.0 | | | | | | | | |
| Manganese, Diss | ug/L | 29.7 | | | | | | | | |
| Thallium, Tot | ug/L | <0.5 | | | | | | | | |
| Molybdenum, Tot | ug/L | <0.5 | | | | | | | | |
| Nickel, Tot | ug/L | 1.6 | | | | | | | | |
| Silver, Tot | ug/L | <0.5 | | | | | | | | |
| Vanadium, Tot | ug/L | <0.5 | | | | | | | | |
| Zinc, Tot | ug/L | 2.0 | | | | | | | | |
| Zinc, Diss | ug/L | 1.9 | | | | | | | | |
| Antimony, Tot | ug/L | <0.5 | | | | | | | | |
| Aluminum, Tot | ug/L | 15.6 | | | | | | | | |
| Aluminum, Diss | ug/L | <8.0 | | | | | | | | |
| Selenium, Tot | ug/L | <0.5 | | | | | | | | |
| Mercury, Tot | ug/L | 0.005 | | | | | | | | |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR10020 | Project: Cordell Hull | Location: Defeated Creek, Mile 5.2

State: Tennessee | Latitude: 36º 21" 8.5' | Quad: Carthage, TN
County: Smith | Longitude: 85º 53" 37.2' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = | Stream Flow =

| Results of Laboratory Analyses | | | Profile Measurements | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Depth | Water Temp | Water Temp | Dis Oxygen | Dis Oxygen | Spec Cond | pH | Chloro a F |
| Sample Depth ft | | 0.0 | ft | deg C | deg F | mg/l | % sat | umho/cm | units | ug/l |
| Alkalinity, Tot | mg/L | 160 | 0.0 | 24.3 | 75.7 | 10.1 | 120.6 | 350.0 | 7.7 | |
| Alkalinity, Phenol | mg/L | 0 | | | | | | | | |
| Solids, Tot | mg/L | 151 | | | | | | | | |
| Solids, Tot Diss | mg/L | 151 | | | | | | | | |
| Solids, Tot Susp | mg/L | <0.250 | | | | | | | | |
| Solids, Vol | mg/L | 174 | | | | | | | | |
| Solids, Vol Diss | mg/L | 135 | | | | | | | | |
| Solids, Vol Susp | mg/L | 39.0 | | | | | | | | |
| Ammonia N, Tot | mg/L | <0.200 | | | | | | | | |
| Kjeldahl N, Tot | mg/L | 0.270 | | | | | | | | |
| NO3+NO2, Tot | mg/L | 0.223 | | | | | | | | |
| Phosphorus, Tot | mg/L | 0.229 | | | | | | | | |
| Phosphorus, Diss | mg/L | 0.205 | | | | | | | | |
| OrthoPhosphate, D | mg/L | <0.0500 | | | | | | | | |
| Organic Carbon, T | mg/L | 2.60 | | | | | | | | |
| Hardness, Tot | mg/L | 177 | | | | | | | | |
| Sulfate, Tot | mg/L | 22.5 | | | | | | | | |
| Calcium, Tot | mg/L | 59.6 | | | | | | | | |
| Magnesium, Tot | mg/L | 6.78 | | | | | | | | |
| Sodium, Tot | mg/L | 2.17 | | | | | | | | |
| Potassium, Tot | mg/L | 1.93 | | | | | | | | |
| Chloride, Tot | mg/L | 4.87 | | | | | | | | |
| Arsenic, Tot | ug/L | 0.5 | | | | | | | | |
| Barium, Tot | ug/L | 17.9 | | | | | | | | |
| Beryllium, Tot | ug/L | <0.5 | | | | | | | | |
| Cadmium, Tot | ug/L | <0.5 | | | | | | | | |
| Chromium, Tot | ug/L | 0.8 | | | | | | | | |
| Cobalt, Tot | ug/L | <0.5 | | | | | | | | |
| Copper, Tot | ug/L | <0.5 | | | | | | | | |
| Iron, Tot | ug/L | 129.0 | | | | | | | | |
| Iron, Diss | ug/L | <8.0 | | | | | | | | |
| Lead, Tot | ug/L | <0.5 | | | | | | | | |
| Lead, Diss | ug/L | | | | | | | | | |
| Manganese, Tot | ug/L | 42.0 | | | | | | | | |
| Manganese, Diss | ug/L | | | | | | | | | |
| Thallium, Tot | ug/L | <0.5 | | | | | | | | |
| Molybdenum, Tot | ug/L | 0.9 | | | | | | | | |
| Nickel, Tot | ug/L | 3.0 | | | | | | | | |
| Silver, Tot | ug/L | <0.5 | | | | | | | | |
| Vanadium, Tot | ug/L | 0.96 | | | | | | | | |
| Zinc, Tot | ug/L | 1.6 | | | | | | | | |
| Zinc, Diss | ug/L | | | | | | | | | |
| Antimony, Tot | ug/L | <0.5 | | | | | | | | |
| Aluminum, Tot | ug/L | 143.0 | | | | | | | | |
| Aluminum, Diss | ug/L | 38.0 | | | | | | | | |
| Selenium, Tot | ug/L | <0.5 | | | | | | | | |
| Mercury, Tot | ug/L | | | | | | | | | |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR10022 | Project: Cordell Hull | Location: Martin Creek, Mile 4.0

State: Tennessee | Latitude: 36º 14" 22' | Quad: Buffalo Valley, TN
County: Jackson | Longitude: 85º 45" 50' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = | Stream Flow =

| Results of Laboratory Analyses | | | Profile Measurements | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Depth | Water Temp | Water Temp | Dis Oxygen | Dis Oxygen | Spec Cond | pH | Chloro a F |
| Sample Depth ft | | 0.0 | ft | deg C | deg F | mg/l | % sat | umho/cm | units | ug/l |
| Alkalinity, Tot | mg/L | 148 | 0.0 | 25.3 | 77.5 | 8.1 | 98.5 | 314.0 | 7.7 | |
| Alkalinity, Phenol | mg/L | 0 | | | | | | | | |
| Solids, Tot | mg/L | 217 | | | | | | | | |
| Solids, Tot Diss | mg/L | 217 | | | | | | | | |
| Solids, Tot Susp | mg/L | <0.250 | | | | | | | | |
| Solids, Vol | mg/L | 90.0 | | | | | | | | |
| Solids, Vol Diss | mg/L | 90 | | | | | | | | |
| Solids, Vol Susp | mg/L | <4.00 | | | | | | | | |
| Ammonia N, Tot | mg/L | <0.200 | | | | | | | | |
| Kjeldahl N, Tot | mg/L | <0.0700 | | | | | | | | |
| NO3+NO2, Tot | mg/L | 0.123 | | | | | | | | |
| Phosphorus, Tot | mg/L | 0.106 | | | | | | | | |
| Phosphorus, Diss | mg/L | 0.100 | | | | | | | | |
| OrthoPhosphate, D | mg/L | 0.0674 | | | | | | | | |
| Organic Carbon, T | mg/L | 1.10 | | | | | | | | |
| Hardness, Tot | mg/L | 156 | | | | | | | | |
| Sulfate, Tot | mg/L | 10.6 | | | | | | | | |
| Calcium, Tot | mg/L | 49.4 | | | | | | | | |
| Magnesium, Tot | mg/L | 7.98 | | | | | | | | |
| Sodium, Tot | mg/L | 2.64 | | | | | | | | |
| Potassium, Tot | mg/L | 1.07 | | | | | | | | |
| Chloride, Tot | mg/L | 6.21 | | | | | | | | |
| Arsenic, Tot | ug/L | <0.5 | | | | | | | | |
| Barium, Tot | ug/L | 17.1 | | | | | | | | |
| Beryllium, Tot | ug/L | <0.5 | | | | | | | | |
| Cadmium, Tot | ug/L | <0.5 | | | | | | | | |
| Chromium, Tot | ug/L | 0.8 | | | | | | | | |
| Cobalt, Tot | ug/L | <0.5 | | | | | | | | |
| Copper, Tot | ug/L | <0.5 | | | | | | | | |
| Iron, Tot | ug/L | 16.0 | | | | | | | | |
| Iron, Diss | ug/L | <8.0 | | | | | | | | |
| Lead, Tot | ug/L | <0.5 | | | | | | | | |
| Lead, Diss | ug/L | | | | | | | | | |
| Manganese, Tot | ug/L | 12.6 | | | | | | | | |
| Manganese, Diss | ug/L | | | | | | | | | |
| Thallium, Tot | ug/L | <0.5 | | | | | | | | |
| Molybdenum, Tot | ug/L | 1.1 | | | | | | | | |
| Nickel, Tot | ug/L | 2.1 | | | | | | | | |
| Silver, Tot | ug/L | <0.5 | | | | | | | | |
| Vanadium, Tot | ug/L | 0.6 | | | | | | | | |
| Zinc, Tot | ug/L | 0.8 | | | | | | | | |
| Zinc, Diss | ug/L | | | | | | | | | |
| Antimony, Tot | ug/L | <0.5 | | | | | | | | |
| Aluminum, Tot | ug/L | <8.0 | | | | | | | | |
| Aluminum, Diss | ug/L | <8.0 | | | | | | | | |
| Selenium, Tot | ug/L | <0.5 | | | | | | | | |
| Mercury, Tot | ug/L | | | | | | | | | |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR10023 | Project: Cordell Hull | Location: Roaring River, Mile 6.2

State: Tennessee | Latitude: 36º 21" 36.5' | Quad: Dodson Branch, TN
County: Jackson | Longitude: 85º 35" 1.8' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses

| Sample Depth ft | | 0.0 |
|---|---|---|
| Alkalinity, Tot | mg/L | 108 |
| Alkalinity, Phenol | mg/L | 0 |
| Solids, Tot | mg/L | 180 |
| Solids, Tot Diss | mg/L | 180 |
| Solids, Tot Susp | mg/L | <0.250 |
| Solids, Vol | mg/L | 113 |
| Solids, Vol Diss | mg/L | 113 |
| Solids, Vol Susp | mg/L | <4.00 |
| Ammonia N, Tot | mg/L | <0.200 |
| Kjeldahl N, Tot | mg/L | <0.0700 |
| NO3+NO2, Tot | mg/L | <0.0200 |
| Phosphorus, Tot | mg/L | 0.0300 |
| Phosphorus, Diss | mg/L | 0.0335 |
| OrthoPhosphate, D | mg/L | <0.0500 |
| Organic Carbon, T | mg/L | 1.40 |
| Hardness, Tot | mg/L | 121 |
| Sulfate, Tot | mg/L | 8.78 |
| Calcium, Tot | mg/L | 38.3 |
| Magnesium, Tot | mg/L | 6.16 |
| Sodium, Tot | mg/L | 2.29 |
| Potassium, Tot | mg/L | 1.26 |
| Chloride, Tot | mg/L | 5.11 |
| Arsenic, Tot | ug/L | <0.5 |
| Barium, Tot | ug/L | 21.3 |
| Beryllium, Tot | ug/L | <0.5 |
| Cadmium, Tot | ug/L | <0.5 |
| Chromium, Tot | ug/L | 0.6 |
| Cobalt, Tot | ug/L | <0.5 |
| Copper, Tot | ug/L | <0.5 |
| Iron, Tot | ug/L | 14.9 |
| Iron, Diss | ug/L | <8.0 |
| Lead, Tot | ug/L | <0.5 |
| Lead, Diss | ug/L | |
| Manganese, Tot | ug/L | 16.3 |
| Manganese, Diss | ug/L | |
| Thallium, Tot | ug/L | <0.5 |
| Molybdenum, Tot | ug/L | 1.0 |
| Nickel, Tot | ug/L | 1.7 |
| Silver, Tot | ug/L | <0.5 |
| Vanadium, Tot | ug/L | 0.7 |
| Zinc, Tot | ug/L | 0.7 |
| Zinc, Diss | ug/L | |
| Antimony, Tot | ug/L | <0.5 |
| Aluminum, Tot | ug/L | <8.0 |
| Aluminum, Diss | ug/L | <8.0 |
| Selenium, Tot | ug/L | <0.5 |
| Mercury, Tot | ug/L | |

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 26.0 | 78.8 | 7.8 | 96.0 | 246.0 | 7.7 | |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR10024 | Project: Cordell Hull | Location: Mill Creek, Mile 1.7

State: Tennessee | Latitude: 36º 29" 36' | Quad: Burristown, TN
County: Clay | Longitude: 85º 33" 3' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = | Stream Flow =

(No Laboratory Analyses)

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 19.3 | 66.7 | 8.7 | 94.6 | 455.0 | 7.7 | |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR10025 | Project: Cordell Hull | Location: Jennings Creek, Mile 4.7

State: Tennessee | Latitude: 36º 26" 25.1' | Quad: Whitleyville, TN
County: Jackson | Longitude: 85º 40" 28.5' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = | Stream Flow =

(No Laboratory Analyses)

Profile Measurements

| Depth | Water Temp | Water Temp | Dis Oxygen | Dis Oxygen | Spec Cond | pH | Chloro a F |
|---|---|---|---|---|---|---|---|
| ft | deg C | deg F | mg/l | % sat | umho/cm | units | ug/l |
| 0.0 | 17.9 | 64.2 | 10.8 | 114.2 | 276.0 | 7.7 | |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20002 | Project: Cordell Hull | Location: Cumberland River, Mile 314.0

State: Tennessee | Latitude: 36° 17" 47' | Quad: Carthage, TN
County: Smith | Longitude: 85° 56" 58' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 1.4 m

Results of Laboratory Analyses

| Sample Depth ft | | 0.0 | 70.0 |
|---|---|---|---|
| Alkalinity, Tot | mg/L | 58 | 72 |
| Alkalinity, Phenol | mg/L | 10 | 0 |
| Solids, Tot | mg/L | 153 | 194 |
| Solids, Tot Diss | mg/L | 153 | 194 |
| Solids, Tot Susp | mg/L | <0.250 | <0.250 |
| Solids, Vol | mg/L | 174 | 140 |
| Solids, Vol Diss | mg/L | 84.0 | 102 |
| Solids, Vol Susp | mg/L | 90.0 | 38.0 |
| Ammonia N, Tot | mg/L | <0.200 | <0.200 |
| Kjeldahl N, Tot | mg/L | 0.340 | 0.220 |
| NO3+NO2, Tot | mg/L | <0.0200 | 0.106 |
| Phosphorus, Tot | mg/L | 0.0372 | 0.0242 |
| Phosphorus, Diss | mg/L | 0.0177 | 0.0328 |
| OrthoPhosphate, D | mg/L | <0.0500 | <0.0500 |
| Organic Carbon, T | mg/L | 3.30 | 2.70 |
| Hardness, Tot | mg/L | 85.7 | 73.7 |
| Sulfate, Tot | mg/L | 28.2 | 24.7 |
| Calcium, Tot | mg/L | 24.3 | 19.3 |
| Magnesium, Tot | mg/L | 6.10 | 6.22 |
| Sodium, Tot | mg/L | 4.36 | 5.09 |
| Potassium, Tot | mg/L | 1.38 | 1.40 |
| Chloride, Tot | mg/L | 3.82 | 4.18 |
| Arsenic, Tot | ug/L | 0.8 | 0.82 |
| Barium, Tot | ug/L | 31.1 | 16.7 |
| Beryllium, Tot | ug/L | <0.5 | <0.5 |
| Cadmium, Tot | ug/L | <0.5 | <0.5 |
| Chromium, Tot | ug/L | 0.6 | <0.5 |
| Cobalt, Tot | ug/L | <0.5 | <0.5 |
| Copper, Tot | ug/L | <0.5 | <0.5 |
| Iron, Tot | ug/L | 171.0 | 12.3 |
| Iron, Diss | ug/L | <8.0 | 21.9 |
| Lead, Tot | ug/L | <0.5 | <0.5 |
| Lead, Diss | ug/L | <0.5 | <0.5 |
| Manganese, Tot | ug/L | 315.0 | 14.9 |
| Manganese, Diss | ug/L | 2.7 | 45.1 |
| Thallium, Tot | ug/L | <0.5 | <0.5 |
| Molybdenum, Tot | ug/L | <0.5 | 0.6 |
| Nickel, Tot | ug/L | 1.8 | 1.1 |
| Silver, Tot | ug/L | <0.5 | <0.5 |
| Vanadium, Tot | ug/L | 0.6 | 0.7 |
| Zinc, Tot | ug/L | 1.3 | 0.8 |
| Zinc, Diss | ug/L | 0.6 | 1.2 |
| Antimony, Tot | ug/L | <0.5 | <0.5 |
| Aluminum, Tot | ug/L | 46.3 | <8.0 |
| Aluminum, Diss | ug/L | <8.0 | <8.0 |
| Selenium, Tot | ug/L | <0.5 | <0.5 |
| Mercury, Tot | ug/L | 0.026 | 0.02 |

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 31.7 | 89.1 | 9.3 | 125.8 | 182.0 | 9.2 | 1.7 |
| 5.0 | 28.6 | 83.5 | 10.6 | 136.4 | 180.0 | 9.3 | 6.6 |
| 10.0 | 28.1 | 82.6 | 8.8 | 112.3 | 179.0 | 9.1 | 7.8 |
| 15.0 | 27.2 | 81.0 | 0.7 | 8.8 | 194.0 | 7.2 | 5.3 |
| 20.0 | 23.8 | 74.8 | 0.0 | 0.0 | 200.0 | 6.9 | 1.7 |
| 25.0 | 22.5 | 72.5 | 1.4 | 16.2 | 196.0 | 6.8 | 0.7 |
| 30.0 | 21.9 | 71.4 | 2.6 | 29.7 | 196.0 | 6.8 | 0.6 |
| 35.0 | 21.3 | 70.3 | 3.4 | 38.4 | 195.0 | 6.9 | 0.5 |
| 40.0 | 21.0 | 69.8 | 3.4 | 38.2 | 195.0 | 6.9 | 0.5 |
| 45.0 | 20.8 | 69.4 | 3.2 | 35.8 | 195.0 | 6.8 | 0.4 |
| 50.0 | 20.7 | 69.3 | 2.9 | 32.4 | 195.0 | 6.8 | 0.4 |
| 55.0 | 20.7 | 69.3 | 2.9 | 32.4 | 195.0 | 6.8 | 0.4 |
| 60.0 | 20.7 | 69.3 | 2.7 | 31.1 | 194.0 | 6.8 | 0.4 |
| 65.0 | 20.7 | 69.3 | 2.4 | 26.8 | 194.0 | 6.8 | 0.5 |
| 70.0 | 20.6 | 69.1 | 1.9 | 21.2 | 195.0 | 6.8 | 0.5 |
| 75.0 | 20.5 | 68.9 | 0.5 | 5.6 | 198.0 | 6.8 | 0.6 |
| 77.0 | 20.5 | 68.9 | 0.3 | 3.3 | 200.0 | 6.8 | 0.6 |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20003 | Project: Cordell Hull | Location: Cumberland River, Mile 323.0

State: Tennessee | Latitude: 36º 16" 47' | Quad: Carthage, TN
County: Smith | Longitude: 85º 53" 10' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 1.5 m

(No Laboratory Analyses)

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 32.2 | 90.0 | 9.5 | 129.5 | 185.0 | 9.1 | 2.9 |
| 5.0 | 29.1 | 84.4 | 10.5 | 136.2 | 183.0 | 9.2 | 8.9 |
| 10.0 | 28.1 | 82.6 | 7.1 | 90.6 | 183.0 | 8.7 | 6.7 |
| 15.0 | 27.0 | 80.6 | 0.4 | 5.0 | 195.0 | 7.1 | 5.8 |
| 20.0 | 23.6 | 74.5 | 1.1 | 13.0 | 199.0 | 6.9 | 0.8 |
| 25.0 | 22.6 | 72.7 | 3.4 | 39.4 | 197.0 | 6.9 | 0.5 |
| 30.0 | 21.7 | 71.1 | 4.4 | 50.1 | 196.0 | 7.0 | 0.5 |
| 35.0 | 21.1 | 70.0 | 4.6 | 51.8 | 196.0 | 6.9 | 0.4 |
| 40.0 | 20.8 | 69.4 | 4.5 | 50.4 | 196.0 | 6.9 | 0.4 |
| 45.0 | 20.6 | 69.1 | 4.3 | 48.0 | 196.0 | 6.9 | 0.5 |
| 50.0 | 20.5 | 68.9 | 3.8 | 42.3 | 196.0 | 6.9 | 0.6 |
| 55.0 | 20.5 | 68.9 | 3.4 | 37.9 | 197.0 | 6.9 | 0.6 |
| 60.0 | 20.5 | 68.9 | 3.1 | 34.5 | 198.0 | 6.9 | 0.7 |
| 65.0 | 20.4 | 68.7 | 2.7 | 30.0 | 198.0 | 6.9 | 0.8 |
| 69.0 | 20.4 | 68.7 | 2.3 | 25.6 | 201.0 | 6.9 | 1.1 |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20004 | Project: Cordell Hull | Location: Cumberland River, Mile 327.9

State: Tennessee | Latitude: 36º 16" 51' | Quad: Granville, TN
County: Smith | Longitude: 85º 50" 11' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = | Secchi Disk =

(No Laboratory Analyses)

Profile Measurements

| Depth | Water Temp | Water Temp | Dis Oxygen | Dis Oxygen | Spec Cond | pH | Chloro a F |
|---|---|---|---|---|---|---|---|
| ft | deg C | deg F | mg/l | % sat | umho/cm | units | ug/l |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20004 | Project: Cordell Hull | Location: Cumberland River, Mile 327.9

State: Tennessee | Latitude: 36° 16" 51' | Quad: Granville, TN
County: Smith | Longitude: 85° 50" 11' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 1.0 m

(No Laboratory Analyses)

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 30.6 | 87.1 | 10.2 | 135.6 | 186.0 | 9.1 | 2.5 |
| 5.0 | 29.2 | 84.6 | 10.6 | 137.7 | 186.0 | 9.1 | 7.1 |
| 10.0 | 27.9 | 82.2 | 7.3 | 92.8 | 184.0 | 8.7 | 7.7 |
| 15.0 | 26.5 | 79.7 | 0.5 | 6.2 | 196.0 | 7.1 | 3.8 |
| 20.0 | 23.8 | 74.8 | 3.4 | 40.3 | 198.0 | 7.1 | 0.9 |
| 25.0 | 23.0 | 73.4 | 3.4 | 39.7 | 198.0 | 7.0 | 0.9 |
| 30.0 | 21.9 | 71.4 | 4.4 | 50.3 | 198.0 | 7.0 | 0.6 |
| 35.0 | 21.2 | 70.2 | 4.9 | 55.3 | 195.0 | 7.0 | 0.5 |
| 40.0 | 20.9 | 69.6 | 4.8 | 53.9 | 195.0 | 7.0 | 0.5 |
| 45.0 | 20.7 | 69.3 | 4.6 | 51.4 | 196.0 | 7.0 | 0.6 |
| 50.0 | 20.6 | 69.1 | 4.3 | 48.0 | 196.0 | 7.0 | 0.6 |
| 55.0 | 20.5 | 68.9 | 3.7 | 41.2 | 198.0 | 6.9 | 1.0 |
| 60.0 | 20.4 | 68.7 | 3.4 | 37.8 | 199.0 | 6.9 | 1.0 |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20005 | Project: Cordell Hull | Location: Cumberland River, Mile 340.8

State: Tennessee | Latitude: 36° 19" 11' | Quad: Gainesboro, TN
County: Jackson | Longitude: 85° 44" 47' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 0.9 m

Results of Laboratory Analyses

| Sample Depth ft | | 25.0 |
|---|---|---|
| Alkalinity, Tot | mg/L | 66 |
| Alkalinity, Phenol | mg/L | 0 |
| Solids, Tot | mg/L | 172 |
| Solids, Tot Diss | mg/L | 172 |
| Solids, Tot Susp | mg/L | <0.250 |
| Solids, Vol | mg/L | 124 |
| Solids, Vol Diss | mg/L | 124 |
| Solids, Vol Susp | mg/L | <4.00 |
| Ammonia N, Tot | mg/L | <0.200 |
| Kjeldahl N, Tot | mg/L | 0.320 |
| NO3+NO2, Tot | mg/L | 0.128 |
| Phosphorus, Tot | mg/L | 0.0240 |
| Phosphorus, Diss | mg/L | 0.0206 |
| OrthoPhosphate, D | mg/L | <0.0500 |
| Organic Carbon, T | mg/L | 2.50 |
| Hardness, Tot | mg/L | 85.0 |
| Sulfate, Tot | mg/L | 23.7 |
| Calcium, Tot | mg/L | 24.4 |
| Magnesium, Tot | mg/L | 5.84 |
| Sodium, Tot | mg/L | 4.21 |
| Potassium, Tot | mg/L | 1.37 |
| Chloride, Tot | mg/L | 4.19 |
| Arsenic, Tot | ug/L | <0.5 |
| Barium, Tot | ug/L | 22.7 |
| Beryllium, Tot | ug/L | <0.5 |
| Cadmium, Tot | ug/L | <0.5 |
| Chromium, Tot | ug/L | 0.5 |
| Cobalt, Tot | ug/L | <0.5 |
| Copper, Tot | ug/L | <0.5 |
| Iron, Tot | ug/L | 68.6 |
| Iron, Diss | ug/L | <8.0 |
| Lead, Tot | ug/L | <0.5 |
| Lead, Diss | ug/L | |
| Manganese, Tot | ug/L | 31.3 |
| Manganese, Diss | ug/L | |
| Thallium, Tot | ug/L | <0.5 |
| Molybdenum, Tot | ug/L | <0.5 |
| Nickel, Tot | ug/L | 1.8 |
| Silver, Tot | ug/L | <0.5 |
| Vanadium, Tot | ug/L | <0.5 |
| Zinc, Tot | ug/L | 1.3 |
| Zinc, Diss | ug/L | |
| Antimony, Tot | ug/L | <0.5 |
| Aluminum, Tot | ug/L | <8.0 |
| Aluminum, Diss | ug/L | <8.0 |
| Selenium, Tot | ug/L | <0.5 |
| Mercury, Tot | ug/L | |

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 30.4 | 86.7 | 9.6 | 127.2 | 189.0 | 8.9 | 3.2 |
| 5.0 | 28.4 | 83.1 | 10.4 | 133.3 | 188.0 | 9.0 | 9.6 |
| 10.0 | 27.2 | 81.0 | 6.6 | 82.9 | 193.0 | 7.9 | 4.9 |
| 15.0 | 24.7 | 76.5 | 6.7 | 80.6 | 195.0 | 7.4 | 1.9 |
| 20.0 | 22.9 | 73.2 | 6.6 | 76.9 | 194.0 | 7.2 | 1.6 |
| 25.0 | 21.4 | 70.5 | 6.1 | 69.1 | 193.0 | 7.1 | 0.9 |
| 30.0 | 21.1 | 70.0 | 5.9 | 66.4 | 194.0 | 7.0 | 0.7 |
| 35.0 | 20.8 | 69.4 | 5.6 | 62.7 | 195.0 | 7.0 | 0.7 |
| 40.0 | 20.7 | 69.3 | 5.4 | 60.4 | 195.0 | 7.0 | 0.6 |
| 45.0 | 20.4 | 68.7 | 4.8 | 53.3 | 195.0 | 7.0 | 0.8 |
| 50.0 | 20.3 | 68.5 | 4.4 | 48.8 | 196.0 | 6.9 | 0.9 |
| 55.0 | 20.2 | 68.4 | 3.7 | 41.0 | 198.0 | 6.9 | 1.1 |
| 58.0 | 20.2 | 68.4 | 3.6 | 39.9 | 198.0 | 6.9 | 1.2 |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20006 | Project: Cordell Hull | Location: Cumberland River, Mile 358.6

State: Tennessee | Latitude: 36° 23" 5' | Quad: Whitleyville, TN
County: Jackson | Longitude: 85° 38" 31' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 1.5 m

| Results of Laboratory Analyses | | | Profile Measurements | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Depth | Water Temp | Water Temp | Dis Oxygen | Dis Oxygen | Spec Cond | pH | Chloro a F |
| Sample Depth ft | | 15.0 | ft | deg C | deg F | mg/l | % sat | umho/cm | units | ug/l |
| Alkalinity, Tot | mg/L | 64 | 0.0 | 27.6 | 81.7 | 10.5 | 132.8 | 189.0 | 8.6 | 2.0 |
| Alkalinity, Phenol | mg/L | 0 | 5.0 | 26.7 | 80.1 | 10.6 | 132.1 | 190.0 | 8.5 | 4.9 |
| Solids, Tot | mg/L | 158 | 10.0 | 24.6 | 76.3 | 10.1 | 121.3 | 190.0 | 8.2 | 5.7 |
| Solids, Tot Diss | mg/L | 158 | 15.0 | 22.6 | 72.7 | 7.8 | 90.3 | 195.0 | 7.3 | 3.8 |
| Solids, Tot Susp | mg/L | <0.250 | 20.0 | 20.8 | 69.4 | 5.8 | 64.9 | 194.0 | 7.0 | 1.6 |
| Solids, Vol | mg/L | 155 | 25.0 | 20.5 | 68.9 | 5.3 | 59.0 | 194.0 | 6.9 | 1.2 |
| Solids, Vol Diss | mg/L | 144 | 30.0 | 20.5 | 68.9 | 5.1 | 56.8 | 194.0 | 6.9 | 1.1 |
| Solids, Vol Susp | mg/L | 11.0 | 35.0 | 20.5 | 68.9 | 4.9 | 54.6 | 209.0 | 6.9 | 1.4 |
| Ammonia N, Tot | mg/L | <0.200 | | | | | | | | |
| Kjeldahl N, Tot | mg/L | 0.280 | | | | | | | | |
| NO3+NO2, Tot | mg/L | 0.0858 | | | | | | | | |
| Phosphorus, Tot | mg/L | 0.0218 | | | | | | | | |
| Phosphorus, Diss | mg/L | 0.0174 | | | | | | | | |
| OrthoPhosphate, D | mg/L | <0.0500 | | | | | | | | |
| Organic Carbon, T | mg/L | 2.50 | | | | | | | | |
| Hardness, Tot | mg/L | 81.8 | | | | | | | | |
| Sulfate, Tot | mg/L | 27.6 | | | | | | | | |
| Calcium, Tot | mg/L | 22.5 | | | | | | | | |
| Magnesium, Tot | mg/L | 6.22 | | | | | | | | |
| Sodium, Tot | mg/L | 4.81 | | | | | | | | |
| Potassium, Tot | mg/L | 1.43 | | | | | | | | |
| Chloride, Tot | mg/L | 4.30 | | | | | | | | |
| Arsenic, Tot | ug/L | <0.5 | | | | | | | | |
| Barium, Tot | ug/L | 20.3 | | | | | | | | |
| Beryllium, Tot | ug/L | <0.5 | | | | | | | | |
| Cadmium, Tot | ug/L | <0.5 | | | | | | | | |
| Chromium, Tot | ug/L | 0.5 | | | | | | | | |
| Cobalt, Tot | ug/L | <0.5 | | | | | | | | |
| Copper, Tot | ug/L | <0.5 | | | | | | | | |
| Iron, Tot | ug/L | <8.0 | | | | | | | | |
| Iron, Diss | ug/L | <8.0 | | | | | | | | |
| Lead, Tot | ug/L | <0.5 | | | | | | | | |
| Lead, Diss | ug/L | | | | | | | | | |
| Manganese, Tot | ug/L | 12.1 | | | | | | | | |
| Manganese, Diss | ug/L | | | | | | | | | |
| Thallium, Tot | ug/L | <0.5 | | | | | | | | |
| Molybdenum, Tot | ug/L | <0.5 | | | | | | | | |
| Nickel, Tot | ug/L | 1.5 | | | | | | | | |
| Silver, Tot | ug/L | <0.5 | | | | | | | | |
| Vanadium, Tot | ug/L | <0.5 | | | | | | | | |
| Zinc, Tot | ug/L | 1.1 | | | | | | | | |
| Zinc, Diss | ug/L | | | | | | | | | |
| Antimony, Tot | ug/L | <0.5 | | | | | | | | |
| Aluminum, Tot | ug/L | <8.0 | | | | | | | | |
| Aluminum, Diss | ug/L | <8.0 | | | | | | | | |
| Selenium, Tot | ug/L | <0.5 | | | | | | | | |
| Mercury, Tot | ug/L | | | | | | | | | |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20007 | Project: Cordell Hull | Location: Cumberland River, Mile 374.0

State: Tennessee | Latitude: 36º 29" 44' | Quad: Burristown, TN
County: Clay | Longitude: 85º 34" 19' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 1.9 m

(No Laboratory Analyses)

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 26.5 | 79.7 | 9.4 | 116.7 | 194.0 | 8.0 | 5.4 |
| 5.0 | 25.9 | 78.6 | 9.4 | 115.5 | 194.0 | 7.9 | 7.5 |
| 10.0 | 23.3 | 73.9 | 8.4 | 98.5 | 196.0 | 7.4 | 8.3 |
| 15.0 | 17.7 | 63.9 | 7.1 | 74.8 | 198.0 | 7.1 | 5.8 |
| 20.0 | 16.6 | 61.9 | 6.9 | 71.1 | 198.0 | 7.0 | 5.5 |
| 25.0 | 16.3 | 61.3 | 6.7 | 68.6 | 197.0 | 7.0 | 6.8 |
| 29.0 | 16.3 | 61.3 | 6.7 | 68.6 | 197.0 | 6.9 | 8.0 |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20008 | Project: Cordell Hull | Location: Defeated Creek, Mile 1.0

State: Tennessee | Latitude: 36º 18" 11' | Quad: Carthage, TN
County: Smith | Longitude: 85º 54" 9' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 1.4 m

Results of Laboratory Analyses

| Sample Depth ft | | 0.0 | 30.0 |
|---|---|---|---|
| Alkalinity, Tot | mg/L | 56 | 78 |
| Alkalinity, Phenol | mg/L | 10 | 0 |
| Solids, Tot | mg/L | 184 | 182 |
| Solids, Tot Diss | mg/L | 184 | 182 |
| Solids, Tot Susp | mg/L | <0.250 | <0.250 |
| Solids, Vol | mg/L | 141 | 134 |
| Solids, Vol Diss | mg/L | 129 | 134 |
| Solids, Vol Susp | mg/L | 12.0 | <4.00 |
| Ammonia N, Tot | mg/L | <0.200 | 0.580 |
| Kjeldahl N, Tot | mg/L | 0.370 | 0.780 |
| NO3+NO2, Tot | mg/L | <0.0200 | 0.0730 |
| Phosphorus, Tot | mg/L | 0.0297 | 0.184 |
| Phosphorus, Diss | mg/L | 0.0211 | 0.156 |
| OrthoPhosphate, D | mg/L | <0.0500 | <0.0500 |
| Organic Carbon, T | mg/L | 3.40 | 2.50 |
| Hardness, Tot | mg/L | 75.7 | 85.9 |
| Sulfate, Tot | mg/L | 28.5 | 26.0 |
| Calcium, Tot | mg/L | 19.9 | 23.5 |
| Magnesium, Tot | mg/L | 6.31 | 6.59 |
| Sodium, Tot | mg/L | 5.16 | 5.09 |
| Potassium, Tot | mg/L | 1.44 | 1.52 |
| Chloride, Tot | mg/L | 3.87 | 3.95 |
| Arsenic, Tot | ug/L | 0.9 | 1.9 |
| Barium, Tot | ug/L | 16.2 | 30.6 |
| Beryllium, Tot | ug/L | <0.5 | <0.5 |
| Cadmium, Tot | ug/L | <0.5 | <0.5 |
| Chromium, Tot | ug/L | <0.5 | 0.6 |
| Cobalt, Tot | ug/L | <0.5 | <0.5 |
| Copper, Tot | ug/L | <0.5 | <0.5 |
| Iron, Tot | ug/L | 13.7 | 559.0 |
| Iron, Diss | ug/L | <8.0 | 354.0 |
| Lead, Tot | ug/L | <0.5 | <0.5 |
| Lead, Diss | ug/L | | |
| Manganese, Tot | ug/L | 23.8 | 841.0 |
| Manganese, Diss | ug/L | | |
| Thallium, Tot | ug/L | <0.5 | <0.5 |
| Molybdenum, Tot | ug/L | 0.6 | <0.5 |
| Nickel, Tot | ug/L | 1.3 | 1.5 |
| Silver, Tot | ug/L | <0.5 | <0.5 |
| Vanadium, Tot | ug/L | 0.71 | <0.5 |
| Zinc, Tot | ug/L | 1.2 | 1.2 |
| Zinc, Diss | ug/L | | |
| Antimony, Tot | ug/L | <0.5 | <0.5 |
| Aluminum, Tot | ug/L | <8.0 | 98.6 |
| Aluminum, Diss | ug/L | <8.0 | <8.0 |
| Selenium, Tot | ug/L | <0.5 | <0.5 |
| Mercury, Tot | ug/L | | |

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 32.4 | 90.3 | 10.1 | 138.1 | 184.0 | 9.2 | 3.7 |
| 5.0 | 29.0 | 84.2 | 11.7 | 151.5 | 183.0 | 9.3 | 10.5 |
| 10.0 | 28.1 | 82.6 | 8.4 | 107.2 | 182.0 | 9.0 | 12.8 |
| 15.0 | 26.8 | 80.2 | 0.0 | 0.0 | 201.0 | 7.2 | 4.6 |
| 20.0 | 24.3 | 75.7 | 0.0 | 0.0 | 214.0 | 7.1 | 2.2 |
| 25.0 | 22.9 | 73.2 | 0.0 | 0.0 | 205.0 | 6.9 | 1.3 |
| 30.0 | 22.0 | 71.6 | 0.0 | 0.0 | 207.0 | 6.8 | 1.2 |
| 35.0 | 21.2 | 70.2 | 0.0 | 0.0 | 216.0 | 6.8 | 1.2 |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20010 | Project: Cordell Hull | Location: Cumberland River, Mile 381.0

State: Tennessee | Latitude: 36º 33" 23' | Quad: Celina, TN-KY
County: Clay | Longitude: 85º 30" 44' | HUC: 05130103

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 1.9 m

| Results of Laboratory Analyses | | | Profile Measurements | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Depth | Water Temp | Water Temp | Dis Oxygen | Dis Oxygen | Spec Cond | pH | Chloro a F |
| Sample Depth ft | | 10.0 | ft | deg C | deg F | mg/l | % sat | umho/cm | units | ug/l |
| Alkalinity, Tot | mg/L | 58 | 0.0 | 25.4 | 77.7 | 8.1 | 98.7 | 191.0 | 7.5 | 4.3 |
| Alkalinity, Phenol | mg/L | 0 | 5.0 | 24.4 | 75.9 | 7.9 | 94.5 | 190.0 | 7.3 | 3.5 |
| Solids, Tot | mg/L | 237 | 10.0 | 19.3 | 66.7 | 7.2 | 78.3 | 203.0 | 6.9 | 4.7 |
| Solids, Tot Diss | mg/L | 237 | 15.0 | 13.5 | 56.3 | 6.7 | 64.6 | 197.0 | 6.5 | 5.7 |
| Solids, Tot Susp | mg/L | <0.250 | 17.0 | 12.2 | 54.0 | 6.2 | 58.0 | 198.0 | 6.4 | 6.1 |
| Solids, Vol | mg/L | 131 | | | | | | | | |
| Solids, Vol Diss | mg/L | 92.0 | | | | | | | | |
| Solids, Vol Susp | mg/L | 39.0 | | | | | | | | |
| Ammonia N, Tot | mg/L | 0.550 | | | | | | | | |
| Kjeldahl N, Tot | mg/L | 1.30 | | | | | | | | |
| NO3+NO2, Tot | mg/L | 0.180 | | | | | | | | |
| Phosphorus, Tot | mg/L | 0.0242 | | | | | | | | |
| Phosphorus, Diss | mg/L | 0.0254 | | | | | | | | |
| OrthoPhosphate, D | mg/L | <0.0500 | | | | | | | | |
| Organic Carbon, T | mg/L | 3.70 | | | | | | | | |
| Hardness, Tot | mg/L | 89.6 | | | | | | | | |
| Sulfate, Tot | mg/L | 29.2 | | | | | | | | |
| Calcium, Tot | mg/L | 24.9 | | | | | | | | |
| Magnesium, Tot | mg/L | 6.63 | | | | | | | | |
| Sodium, Tot | mg/L | 4.95 | | | | | | | | |
| Potassium, Tot | mg/L | 1.42 | | | | | | | | |
| Chloride, Tot | mg/L | 4.69 | | | | | | | | |
| Arsenic, Tot | ug/L | <0.5 | | | | | | | | |
| Barium, Tot | ug/L | 22.0 | | | | | | | | |
| Beryllium, Tot | ug/L | <0.5 | | | | | | | | |
| Cadmium, Tot | ug/L | <0.5 | | | | | | | | |
| Chromium, Tot | ug/L | 0.7 | | | | | | | | |
| Cobalt, Tot | ug/L | <0.5 | | | | | | | | |
| Copper, Tot | ug/L | 2.1 | | | | | | | | |
| Iron, Tot | ug/L | 60.5 | | | | | | | | |
| Iron, Diss | ug/L | <8.0 | | | | | | | | |
| Lead, Tot | ug/L | 3.0 | | | | | | | | |
| Lead, Diss | ug/L | | | | | | | | | |
| Manganese, Tot | ug/L | 41.3 | | | | | | | | |
| Manganese, Diss | ug/L | | | | | | | | | |
| Thallium, Tot | ug/L | <0.5 | | | | | | | | |
| Molybdenum, Tot | ug/L | <0.5 | | | | | | | | |
| Nickel, Tot | ug/L | 1.8 | | | | | | | | |
| Silver, Tot | ug/L | <0.5 | | | | | | | | |
| Vanadium, Tot | ug/L | <0.5 | | | | | | | | |
| Zinc, Tot | ug/L | 2.0 | | | | | | | | |
| Zinc, Diss | ug/L | | | | | | | | | |
| Antimony, Tot | ug/L | <0.5 | | | | | | | | |
| Aluminum, Tot | ug/L | 69.0 | | | | | | | | |
| Aluminum, Diss | ug/L | <8.0 | | | | | | | | |
| Selenium, Tot | ug/L | <0.5 | | | | | | | | |
| Mercury, Tot | ug/L | | | | | | | | | |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20013 | Project: Cordell Hull | Location: Cumberland River, Mile 349.5

State: Tennessee | Latitude: 36º 21" 38' | Quad: Gainesboro, TN
County: Jackson | Longitude: 85º 40" 51' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 1.5 m

(No Laboratory Analyses)

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 29.5 | 85.1 | 10.2 | 133.2 | 193.0 | 8.8 | 4.0 |
| 5.0 | 26.5 | 79.7 | 9.9 | 122.9 | 193.0 | 8.5 | 7.1 |
| 10.0 | 25.8 | 78.4 | 9.6 | 117.7 | 193.0 | 8.3 | 8.0 |
| 15.0 | 24.3 | 75.7 | 9.2 | 109.9 | 193.0 | 7.9 | 5.7 |
| 20.0 | 23.2 | 73.8 | 8.3 | 97.2 | 193.0 | 7.5 | 3.8 |
| 25.0 | 22.0 | 71.6 | 6.8 | 77.9 | 193.0 | 7.2 | 2.2 |
| 30.0 | 21.4 | 70.5 | 6.2 | 70.2 | 193.0 | 7.1 | 1.7 |
| 35.0 | 21.1 | 70.0 | 6.0 | 67.6 | 193.0 | 7.0 | 1.4 |
| 40.0 | 21.0 | 69.8 | 5.7 | 64.1 | 193.0 | 7.0 | 1.4 |
| 43.0 | 21.0 | 69.8 | 5.6 | 62.9 | 194.0 | 7.0 | 1.6 |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20015 | Project: Cordell Hull | Location: Martin Creek, Mile 1.0

State: Tennessee | Latitude: 36º 16" 20' | Quad: Granville, TN
County: Jackson | Longitude: 85º 47" 27.6' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 0.9 m

Results of Laboratory Analyses

| Sample Depth ft | | 10.0 |
|---|---|---|
| Alkalinity, Tot | mg/L | 60 |
| Alkalinity, Phenol | mg/L | 8 |
| Solids, Tot | mg/L | 140 |
| Solids, Tot Diss | mg/L | 140 |
| Solids, Tot Susp | mg/L | <0.250 |
| Solids, Vol | mg/L | 115 |
| Solids, Vol Diss | mg/L | 80.0 |
| Solids, Vol Susp | mg/L | 35.0 |
| Ammonia N, Tot | mg/L | <0.200 |
| Kjeldahl N, Tot | mg/L | 0.710 |
| NO3+NO2, Tot | mg/L | <0.0200 |
| Phosphorus, Tot | mg/L | 0.0306 |
| Phosphorus, Diss | mg/L | 0.0205 |
| OrthoPhosphate, D | mg/L | <0.0500 |
| Organic Carbon, T | mg/L | 3.80 |
| Hardness, Tot | mg/L | 77.7 |
| Sulfate, Tot | mg/L | 27.4 |
| Calcium, Tot | mg/L | 20.9 |
| Magnesium, Tot | mg/L | 6.20 |
| Sodium, Tot | mg/L | 5.10 |
| Potassium, Tot | mg/L | 1.42 |
| Chloride, Tot | mg/L | 3.92 |
| Arsenic, Tot | ug/L | 1.0 |
| Barium, Tot | ug/L | 16.7 |
| Beryllium, Tot | ug/L | <0.5 |
| Cadmium, Tot | ug/L | <0.5 |
| Chromium, Tot | ug/L | <0.5 |
| Cobalt, Tot | ug/L | <0.5 |
| Copper, Tot | ug/L | <0.5 |
| Iron, Tot | ug/L | 40.0 |
| Iron, Diss | ug/L | <8.0 |
| Lead, Tot | ug/L | <0.5 |
| Lead, Diss | ug/L | |
| Manganese, Tot | ug/L | 21.7 |
| Manganese, Diss | ug/L | |
| Thallium, Tot | ug/L | <0.5 |
| Molybdenum, Tot | ug/L | 0.7 |
| Nickel, Tot | ug/L | 1.4 |
| Silver, Tot | ug/L | <0.5 |
| Vanadium, Tot | ug/L | 0.8 |
| Zinc, Tot | ug/L | 2.1 |
| Zinc, Diss | ug/L | |
| Antimony, Tot | ug/L | <0.5 |
| Aluminum, Tot | ug/L | <8.0 |
| Aluminum, Diss | ug/L | <8.0 |
| Selenium, Tot | ug/L | <0.5 |
| Mercury, Tot | ug/L | |

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 30.7 | 87.3 | 10.9 | 145.1 | 186.0 | 9.2 | 3.3 |
| 5.0 | 28.3 | 82.9 | 10.5 | 134.4 | 184.0 | 9.2 | 13.0 |
| 10.0 | 27.7 | 81.9 | 6.8 | 86.2 | 186.0 | 8.6 | 8.7 |
| 15.0 | 25.3 | 77.5 | 0.1 | 1.2 | 202.0 | 7.0 | 2.1 |
| 20.0 | 23.8 | 74.8 | 0.0 | 0.0 | 207.0 | 7.0 | 1.6 |
| 25.0 | 23.0 | 73.4 | 0.0 | 0.0 | 227.0 | 7.0 | 2.6 |
| 28.0 | 22.0 | 71.6 | 0.0 | 0.0 | 237.0 | 7.0 | 4.4 |

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3COR20016 | Project: Cordell Hull | Location: Roaring River, Mile 0.8

State: Tennessee | Latitude: 36º 22" 43' | Quad: Whitleyville, TN
County: Jackson | Longitude: 85º 38" 7.8' | HUC: 05130106

Sample Date: 16 Jul 2012 | Water Surface Elevation = 504.2 ft | Secchi Disk = 1.0 m

Results of Laboratory Analyses

| Sample Depth ft | | 10.0 |
|---|---|---|
| Alkalinity, Tot | mg/L | 119 |
| Alkalinity, Phenol | mg/L | 0 |
| Solids, Tot | mg/L | 238 |
| Solids, Tot Diss | mg/L | 238 |
| Solids, Tot Susp | mg/L | <0.250 |
| Solids, Vol | mg/L | 144 |
| Solids, Vol Diss | mg/L | 116 |
| Solids, Vol Susp | mg/L | 28.0 |
| Ammonia N, Tot | mg/L | <0.200 |
| Kjeldahl N, Tot | mg/L | 0.340 |
| NO3+NO2, Tot | mg/L | <0.0200 |
| Phosphorus, Tot | mg/L | 0.0349 |
| Phosphorus, Diss | mg/L | 0.0221 |
| OrthoPhosphate, D | mg/L | <0.0500 |
| Organic Carbon, T | mg/L | 2.10 |
| Hardness, Tot | mg/L | 124 |
| Sulfate, Tot | mg/L | 10.6 |
| Calcium, Tot | mg/L | 39.0 |
| Magnesium, Tot | mg/L | 6.55 |
| Sodium, Tot | mg/L | 3.02 |
| Potassium, Tot | mg/L | 1.55 |
| Chloride, Tot | mg/L | 5.51 |
| Arsenic, Tot | ug/L | 0.8 |
| Barium, Tot | ug/L | 26.3 |
| Beryllium, Tot | ug/L | <0.5 |
| Cadmium, Tot | ug/L | <0.5 |
| Chromium, Tot | ug/L | 0.7 |
| Cobalt, Tot | ug/L | <0.5 |
| Copper, Tot | ug/L | <0.5 |
| Iron, Tot | ug/L | 193.0 |
| Iron, Diss | ug/L | <8.0 |
| Lead, Tot | ug/L | <0.5 |
| Lead, Diss | ug/L | |
| Manganese, Tot | ug/L | 92.9 |
| Manganese, Diss | ug/L | |
| Thallium, Tot | ug/L | <0.5 |
| Molybdenum, Tot | ug/L | 0.9 |
| Nickel, Tot | ug/L | 2.1 |
| Silver, Tot | ug/L | <0.5 |
| Vanadium, Tot | ug/L | 0.9 |
| Zinc, Tot | ug/L | 2.3 |
| Zinc, Diss | ug/L | |
| Antimony, Tot | ug/L | <0.5 |
| Aluminum, Tot | ug/L | 37.2 |
| Aluminum, Diss | ug/L | <8.0 |
| Selenium, Tot | ug/L | <0.5 |
| Mercury, Tot | ug/L | |

Profile Measurements

| Depth ft | Water Temp deg C | Water Temp deg F | Dis Oxygen mg/l | Dis Oxygen % sat | Spec Cond umho/cm | pH units | Chloro a F ug/l |
|---|---|---|---|---|---|---|---|
| 0.0 | 28.2 | 82.8 | 11.3 | 144.4 | 242.0 | 8.5 | 7.2 |
| 5.0 | 25.9 | 78.6 | 11.0 | 135.2 | 253.0 | 8.2 | 26.7 |
| 10.0 | 25.0 | 77.0 | 5.7 | 68.9 | 262.0 | 7.4 | 18.2 |
| 15.0 | 22.1 | 71.8 | 0.1 | 1.2 | 213.0 | 6.8 | 8.2 |
| 20.0 | 20.3 | 68.5 | 0.0 | 0.0 | 217.0 | 6.7 | 7.1 |
| 23.0 | 19.9 | 67.8 | 0.0 | 0.0 | 230.0 | 6.7 | 7.1 |